Vol. 914 Number 2

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UNITED STATES PATENT OFFICE

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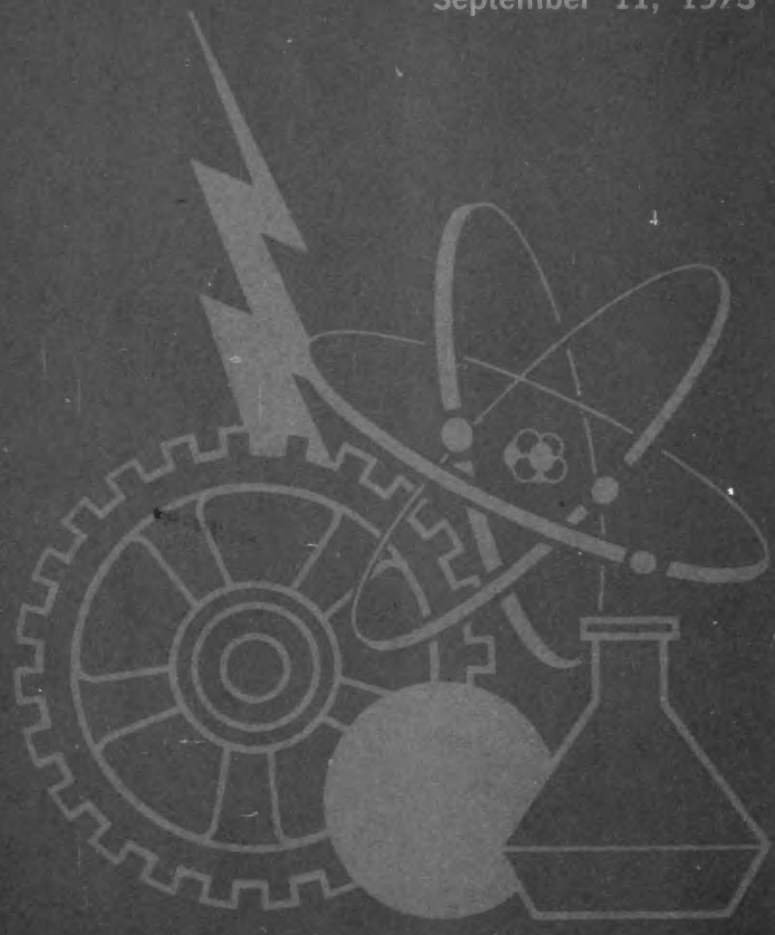
PATENTS

September 11, 1973



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September 11, 1973 Volume 914 Number 2

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PATENT NOTICES

Certificates of Correction for the Week of Sept. 11, 1973

3,336,774	3,709,608	3,720,700	3,728,007
3,565,413	3,709,779	3,721,160	3,728,045
3,569,998	3,709,839	3,721,415	3,728,872
3,628,209	3,709,841	3,721,507	3,728,925
3,634,740	3,710,114	3,721,923	3,729,149
3,663,357	3,710,448	3,722,410	3,729,250
3,638,707	3,711,024	3,723,109	3,729,356
3,644,285	3,711,046	3,723,126	3,729,452
3,653,825	3,711,909	3,723,153	3,729,484
3,666,095	3,712,029	3,723,191	3,729,555
3,666,450	3,712,150	3,723,325	3,729,613
3,682,934	3,712,635	3,723,466	3,730,065
3,684,308	3,714,080	3,723,512	3,730,720
3,686,679	3,714,249	3,723,787	3,730,732
3,688,034	3,714,731	3,723,788	3,731,073
3,689,402	3,715,114	3,724,053	3,731,138
3,689,763	3,715,550	3,724,219	3,731,192
3,691,886	3,715,721	3,724,226	3,731,742
3,692,045	3,715,886	3,724,597	3,731,819
3,692,562	3,716,209	3,724,844	3,731,857
3,696,120	3,716,448	3,724,876	3,732,051
3,697,155	3,716,798	3,725,104	3,732,353
3,697,517	3,716,892	3,725,317	3,732,423
3,698,381	3,716,976	3,725,625	3,732,502
3,699,022	3,717,475	3,725,645	3,732,603
3,701,286	3,717,863	3,725,879	3,732,657
3,701,374	3,718,196	3,726,455	3,732,771
3,704,282	3,718,494	3,726,592	3,732,976
3,704,316	3,719,331	3,726,666	3,733,572
3,706,619	3,719,589	3,726,782	3,733,709
3,706,832	3,719,724	3,726,824	3,734,059
3,708,728	3,719,775	3,727,296	3,734,279
3,708,754	3,720,265	3,727,358	3,734,550
3,708,933	3,720,509	3,727,786	3,734,631
3,709,261	3,720,568	3,727,807	

Disclaimers

3,401,824.—*John Wilson Rouse,* Ramsey, N.J. FULL-OPEN CAN. Patent dated Sept. 17, 1968. Disclaimer filed Aug. 1, 1973, by the assignee, *American Can Company.*

Hereby enters this disclaimer to claims 1, 2, 6 and 7 of said patent.

3,478,132.—*Clarence L. Randolph,* Ashland, Ohio. GOLF BALL COMPRISING AN ELASTOMER DISPERSION OF HIGH MOLECULAR WEIGHT POLYETHYLENE. Patent dated Nov. 11, 1969. Disclaimer filed July 30, 1973, by the assignee, *Eagle Rubber Co., Inc.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,681,355.—*Stephan Guttmann,* Allschwil, and *Rene Huhuenin,* Reinach, Basel-Land, Switzerland. ERGONARCARNINES. Patent dated Aug. 1, 1972. Disclaimer filed May 22, 1972, by the assignee, *Sandoz Ltd. (also known as Sandoz A.G.).*

Hereby disclaims the portion of the term of the patent subsequent to May 30, 1989.

3,682,900.—*Peter Liechti,* Binningen, *Erwin Maeder,* Aesch, Basel-Land, *Leonardo Guglielmetti,* Birsfelden, and *Adolf Emil Siegrist,* Basel, Switzerland. STILBENE DERIVATIVES. Patent dated Aug. 8, 1972. Disclaimer filed Dec. 20, 1971, by the assignee, *Ciba-Geigy A.G.*

Hereby disclaims the portion of the term of the patent subsequent to May 4, 1988.

3,688,780.—*Herbert L. Everroad,* Denver, Colo. AIR FILTER CLEANING METHOD. Patent dated Sept. 5, 1972. Disclaimer filed July 24, 1972, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to Nov. 16, 1988.

3,699,663.—*Robert R. Candor* and *James T. Candor,* Dayton, Ohio. METHOD AND APPARATUS FOR TREATING SHEET-LIKE MATERIAL WITH FLUID. Patent dated Oct. 24, 1972. Disclaimer filed Apr. 26, 1972, by the inventors.

Hereby disclaims the portion of the term of the patent subsequent to July 13, 1988.

3,706,650.—*Steve Eisner,* Schenectady, N.Y. CONTOUR ACTIVATING DEVICE. Patent dated Dec. 19, 1972. Disclaimer filed May 26, 1972, by the assignee, *Norton Company.*

Hereby disclaims the portion of the term of the patent subsequent to Nov. 9, 1988.

3,711,509.—*Karl-Heinz Weber,* Gau-Algesheim, *Karl Zeile* and *Peter Danneberg,* Ingelheim (Rhine), *Rolf Giesemann,* Bingen, and *Karl Heinz Hauptmann,* deceased, late of Ingelheim (Rhine), Germany, by *Maria Hauptmann,* heir, Bonn (Rhine), Germany. 5-PHENYL-1H-1,5-BENZODIAZEPINE-2,4-(3H,5H)-DIONES. Patent dated Jan. 16, 1973. Disclaimer filed Sept. 13, 1972, by the assignee, *Boehringer Ingelheim G.m.b.H.*

Hereby disclaims the portion of the term of the patent subsequent to Aug. 14, 1989.

3,712,075.—*Michael John Stapley Smith,* Boars Hill, *John Henry Wilson,* Stockport, *Bryan Reginald Parr,* Sale, England. APPARATUS FOR PERFORMING THE IMMISCIBLE REFRIGERANT FREEZE PROCESS FOR PURIFYING WATER. Patent dated Jan. 23, 1973. Disclaimer filed Aug. 9, 1973, by the assignee, *United Kingdom Atomic Energy Authority.*

Hereby enters this disclaimer to claims 1, 6, 10, 11 and 12 of said patent.

3,716,658.—*Michael I. Rackman,* Brooklyn, N.Y. LIQUID-CRYSTAL TELEVISION DISPLAY SYSTEM. Patent dated Feb. 13, 1973. Disclaimer filed Sept. 26, 1972, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to May 19, 1987.

3,733,269.—*Jan W. Gooch,* Russellville, Ark. PROCESS FOR COAGULATING AND AGGLOMERATING PARTICULATE MATERIAL WITHIN A LIQUID MEDIA. Patent dated May 15, 1973. Disclaimer filed Apr. 25, 1972, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to June 22, 1988.

Patents Available for Licensing or Sale

D. 224,866. BOOT HOLDER OR SIMILAR ARTICLE. Leon Hammer, 2005 Beech, Caldwell, Idaho, 83605.

2,995,619. SYSTEM OF TELEVISION TRANSMISSION AND PHOTOGRAPHIC REPRODUCTION OF THE TELEVISED IMAGE. Samuel Freeman, 13 Birchwood Court E., Syosset, N.Y., 11791.

3,237,885. SPACE CRAFT. Jack Y. Mohar, 41 W. Arbor St., Long Beach, Calif., 90805.

3,474,799. TOOTH SPACE DENTAL FLOSS HOLDER CLEANER. Vito P. Cappello, 1047 Franklin St., Santa Monica, Calif., 90403.

3,661,166. FLUID LOGIC CONTROL SYSTEM. R. W. Watson, Garlock, Inc., Division St., Palmyra, N.Y., 14522.

3,721,395. TOWEL RACK FOR VEHICLES. Rufus Nipes. Correspondence to: Mason Fenwick & Lawrence, Suite 310, 1730 Rhode Island Ave., Washington, D.C., 20036.

3,727,086. MOTOR WITH RELATIVELY ROTATABLE STATOR AND ROTOR FOR SPEED CONTROL. Hazel Cherwink, 1515 Fowler Creek Road, Sonoma, Calif., 95476.

3,727,118. CONTACTLESS REVERSIBLE DEVICE IN AN ELECTRIC CAR. Nippon Gijutsu Boeki Co., Ltd., 32F Kasumigaseki Bldg., 2-5 Kasumigaseki, 3-chome, Chiyoda-ku, Toyko 100, Japan.

3,733,985. CAMERA FILM IMAGING DEVICE. Lester Gordon, 10 Louise St., Lewiston, Maine.

3,735,346. SECURITY SYSTEM FOR A VEHICLE. Ralph W. Fox. Correspondence to: Evelyn M. Sommer, 156 E. 52nd St., New York, N.Y., 10022.

3,736,779. LOCK. Eugene L. Pratt, School Lane House #1036, 5450 Wissahickon Ave., Philadelphia, Pa., 19144.

3,737,970. TORSION BAR ADJUSTING TOOL. Harold G. Tracey, 14414 Minock St., Detroit, Mich. 48223.

3,740,874. SNOW CLEARERS. Marcel Boschung. Correspondence to: Bovard & Cie, Optingenstrasse 16, CH-3000 Bern 25, Switzerland.

The following 2 patents are offered by: Cecil J. Krow, P.O. Box 264, Ralston, Okla., 74650.

3,509,403. REMOVABLE RENEWABLE ELECTRODE SPARK PLUG.

3,725,715. .090 INCH FIRE SPARK PLUG.

The following 12 patents are offered by Martin J. Devine, with correspondence to be directed to: Woodcock, Washburn, Kurtz & Mackiewicz, 1831. The Fidelity Bldg., 123 S. Broad St., Philadelphia, Pa., 19109.

2,969,263. LUBRICATED ANTI-FRICTION BEARINGS.

2,969,264. LUBRICATED ANTI-FRICTION BEARINGS

2,978,793. METHOD OF LUBRICATING ANTI-FRICTION BEARINGS.

2,978,794. METHOD OF LUBRICATING ANTI-FRICTION BEARINGS WITH BONDED LUBRICANT FILMS.

2,978,795. METHOD OF LUBRICATING ANTI-FRICTION BEARINGS WITH BONDED FILM LUBRICANTS.

2,980,987. METHOD OF LUBRICATING ANTI-FRICTION BEARINGS.

3,001,837. ANTI-FRICTION BEARINGS LUBRICATED WITH BONDED LUBRICANT FILM.

3,001,838. LUBRICATED ANTI-FRICTION BEARINGS.

3,079,204. LUBRICATED BEARINGS. (Offered under non-exclusive licenses only on reasonable terms and conditions.)

3,194,759. LUBRICATED BEARING ASSEMBLIES.

3,198,735. SOLID LUBRICANT COMPOSITION AND METHOD FOR LUBRICATING ANTI-FRICTION BEARING STRUCTURES.

3,211,502. LUBRICATED BEARING ASSEMBLY.

General Electric Company is prepared to grant non-exclusive licenses under the following 11 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to Division Patent Counsel. Switchgear Equipment Business Div., General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,737,759. STATIC SWITCH INCLUDING SURGE SUPPRESSING MEANS.

Applications for license under the following 10 patents may be addressed to: Group Patent Counsel, Major Appliance Business Group, General Electric Company. Appliance Park, Louisville, Ky., 40225.

3,578,279. RESILIENT MOUNTING MEANS.

3,679,282. METHOD AND STRUCTURE FOR CUSHIONING THE OPERATION OF A MOVABLE RACK IN A DISHWASHER.

3,724,236. REFRIGERATOR EVAPORATOR.

3,726,580. RACK LEVEL ADJUSTMENT APPARATUS IN AN APPLIANCE CABINET.

3,726,581. RACK LEVEL ADJUSTMENT APPARATUS IN AN APPLIANCE CABINET.

3,731,496. PHOTOELECTRIC ICE LEVEL SENSOR.

3,732,646. REFRIGERATOR DOOR CONSTRUCTION.

3,733,841. REFRIGERATOR TEMPERATURE CONTROL.

3,739,597. APPARATUS FOR ADDING MOISTURE TO AIR.

3,743,454. ROTARY COMPRESSOR.

General Motors Corporation is prepared to grant non-exclusive license under the following 6 patents upon reasonable terms.

Application for license may be addressed to the Director, Patent Section, General Motors Bldg., 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,567,331. VARIABLE VANE CASCADES.

3,572,969. TURBOMACHINE ROTOR.

3,575,066. TRANSMISSION.

3,575,522. TURBINE COOLING.

3,575,528. TURBINE ROTOR COOLING.

3,575,720. INSULATOR MEANS FOR LITHIUM-CHLORINE HIGH TEMPERATURE BATTERY.

FMC Corporation is prepared to grant licenses under the following 30 patents.

Inquiries respecting licenses should be directed to: FMC Corporation, Patent and Licensing Department, Marcus Hook, Pa., 19061.

3,518,720. APPARATUS FOR MAKING NET-LIKE STRUCTURES.

3,525,785. METHOD FOR EXTRUDING WOVEN NET-LIKE STRUCTURES.

3,550,202. APPARATUS FOR EXTRUDING WOVEN NET-LIKE STRUCTURES.

3,551,236. METHOD AND APPARATUS FOR THE MANUFACTURE OF NET-LIKE MATERIALS.

3,557,271. MANUFACTURE OF NET-LIKE MATERIALS BY EXTRUSION.

3,562,046. METHOD AND APPARATUS FOR MAKING NET-LIKE STRUCTURES.

3,577,587. APPARATUS FOR MAKING RETICULATED STRUCTURES.

3,579,729. APPARATUS FOR EXTRUDING NET-LIKE STRUCTURES.

3,584,102. METHOD FOR MAKING NET-LIKE STRUCTURES.

3,584,341. APPARATUS FOR MAKING NET-LIKE STRUCTURES.

3,591,892. APPARATUS FOR MAKING NET STRUCTURES.

3,591,894. APPARATUS FOR MAKING NET STRUCTURES.

3,592,718. DIFFERENTIALLY BONDED NET-LIKE STRUCTURES.

3,600,751. APPARATUS FOR EXTRUSION OF INTERLACED WEBS.

3,601,850. APPARATUS FOR MAKING NET-LIKE STRUCTURES OF CURVED CONSTRUCTION.

3,613,161. APPARATUS FOR CONTINUOUSLY EXTRUDING NET-LIKE STRUCTURES COMPOSED OF TWISTED MULTIFILAMENT YARNS.

3,621,528. APPARATUS FOR EXTRUDING NET-LIKE FABRICS.

3,627,863. METHOD FOR CONTINUOUSLY EXTRUDING NET-LIKE STRUCTURES.

3,630,117. METHOD AND APPARATUS FOR MAKING NET-LIKE STRUCTURES FROM PREFORMED STRANDS.

3,632,714. METHOD FOR MAKING NET-LIKE STRUCTURES.

3,649,142. APPARATUS FOR EXTRUDING NET-LIKE STRUCTURES.

3,654,029. APPARATUS FOR MAKING NET-LIKE STRUCTURES.

3,654,031. APPARATUS FOR MAKING EXTRUDED NETS HAVING INTEGRAL STRAND JUNCTIONS.

3,683,059. METHOD FOR MAKING RETICULATED STRUCTURES.

3,686,380. METHOD FOR MAKING NET STRUCTURES.

3,686,381. METHOD FOR MAKING NET STRUCTURES.

3,686,382. METHOD FOR MAKING NET-LIKE STRUCTURES OF CURVED CONSTRUCTION.

3,689,617. METHOD FOR EXTRUSION OF INTERLACED WEBS.

3,709,969. METHOD FOR CONTINUOUSLY EXTRUDING NET-LIKE STRUCTURES COMPOSED OF TWISTED MULTIFILAMENT YARNS.

3,713,924. MANUFACTURE OF EXTRUDED NETS HAVING INTEGRAL STRAND JUNCTIONS.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 42 patents upon reasonable terms and conditions.

Inquiries respecting licenses under RCA patents should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of the Americas, New York, N.Y., 10036.

D. 227,785. ENCLOSURE FOR A RADIO OR TELEVISION ANTENNA.

D. 227,902. INDOOR ANTENNA OR SIMILAR ARTICLE.

Re. 27,694. SEMICONDUCTOR LASER PRODUCING LIGHT AT TWO WAVELENGTHS SIMULTANEOUSLY.

Re. 27,698. GANGED RING MAGNETS FOR COORDINATED CONTROL OF A PLURALITY OF BEAMS.

3,743,376. HOLOGRAPHIC BEAM COUPLER.

3,743,507. RECORDING OF A CONTINUOUS TONE FOCUSED IMAGE ON A DIFFRACTION GRATING.

3,743,586. METHOD OF MAKING A COLOR ENCODING FILTER ASSEMBLY.

3,743,764. ELECTRONIC PHASE SHIFTING APPARATUS.

3,743,824. CARRY RIPPLE NETWORK FOR CONDITIONAL SUM ADDER.

3,743,923. REFERENCE VOLTAGE GENERATOR AND REGULATOR.

3,743,944. AUTOMATIC TUNING CONTROL CIRCUITS.

3,743,960. CIRCUIT FOR DRIVING FREQUENCY STANDARD SUCH AS TUNING FORK.

3,743,974. ANTENNA MATCHING NETWORK UTILIZING AN ADJUSTABLE HIGH-POWER INDUCTOR.

3,744,696. RECORDING WEB GUIDE APPARATUS.

3,745,039. ELECTROLESS COBALT PLATING BATH AND PROCESS.

3,745,072. SEMICONDUCTOR DEVICE FABRICATION.

3,745,426. INSULATED GATE FIELD-EFFECT TRANSISTOR WITH VARIABLE GAIN.

3,745,564. SWITCHABLE ACOUSTIC SURFACE WAVE DEVICE.

3,745,586. LASER WRITING.

3,745,647. FABRICATION OF SEMICONDUCTOR DEVICES.

3,746,231. AUTOMATIC WEAR COMPENSATING MECHANISM.

3,746,783. SHUTTERLESS PLAYBACK DEVICE FOR HOLOGRAPHIC MOTION PICTURE RECORD PRESSINGS.

3,746,873. ANTI-CONDENSATION DEVICE FOR INFRARED DETECTOR.

3,746,883. CHARGE TRANSFER CIRCUITS.

3,746,904. CATHODE-RAY TUBE INCLUDING A GLASS ENVELOPE WITH TWO SPACED EXTERNAL CONDUCTIVE COATING AND A CONNECTING STRIP OF A THIRD EXTERNAL CONDUCTIVE COATING THEREON.

3,747,016. SEMICONDUCTOR INJECTION LASER.

3,747,044. MICROWAVE INTEGRATED CIRCUIT (MIC) GROUND PLANE CONNECTOR.

3,747,075. ELECTRO-OPTICAL STORAGE DEVICE.

3,747,081. MAGNETIC DRUM HEAD MOUNT.

3,748,408. TRACKING CONTROL FOR RECORDER-REPRODUCER SYSTEMS WITH THE CONTROL TRANSDUCER LOCATED AT THE NEUTRAL POINT OF THE TAPE STRETCH.

3,748,525. VERTICAL CONVERGENCE CIRCUITS UTILIZING POSITIVE FEEDBACK FOR STABILIZATION.

3,748,591. ILLUMINATION ACTIVATED TRANSISTOR RELAXATION OSCILLATOR.

3,748,975. APPARATUS FOR AND METHOD OF CORRECTING A DEFECTIVE PHOTOMASK.

3,749,383. APPARATUS FOR PROCESSING SEMICONDUCTOR DEVICES.

3,749,469. REDUNDANT FRAUNHOFER RECORDING SYSTEM.

3,749,614. FABRICATION OF SEMICONDUCTOR DEVICES.

3,749,658. METHOD OF FABRICATING TRANSPARENT CONDUCTORS.

3,749,966. HIGH VOLTAGE HOLD DOWN CIRCUIT FOR HORIZONTAL DEFLECTION CIRCUIT.

3,749,984. ELECTROACOUSTIC SEMICONDUCTOR DEVICE EMPLOYING AN IGFET.

3,749,985. HIGH FREQUENCY INSULATED GATE FIELD EFFECT TRANSISTOR FOR WIDE FREQUENCY BAND OPERATION.

3,750,118. MAGNETIC CORE MEMORY PLANE CONSTRUCTION.

3,750,133. HOME TELEVISION RECEIVER MODIFIED TO OPERATE AS VIDEO TERMINAL.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 18, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-30-72
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-01-72
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Acting Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-05-72
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	6-01-72
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	3-24-72
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	1-10-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	11-13-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	10-02-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	5-15-72
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-27-72
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	12-09-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—M. BUCHLER, Acting Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	11-02-72
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	7-05-72
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-24-72
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	9-25-72
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	9-01-72

Expiration of patents: The patents within the range of numbers indicated below expire during September 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,761,142 to 2,764,757, inclusive
Plant Patents..... Numbers 1,509 to 1,521, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED SEPTEMBER 11, 1973

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T914,001
POWDER COATING PROCESS

Peter M. Grant, Hemlock Park 37663, and Herbert R. Lyon, 128 Dahlia 37664, both of Kingsport, Tenn.

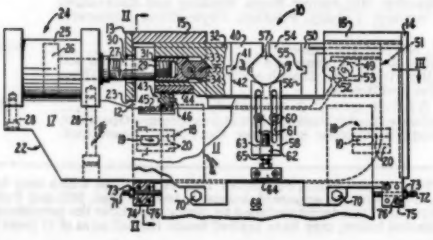
Filed Feb. 23, 1972, Ser. No. 228,760
Int. Cl. B05b *5/02*; B44d *1/094*
U.S. Cl. 117—17
No Drawing. 8 Pages Specification

Disclosed is a process for powder coating electrically nonconductive substrates, which can withstand a temperature within the range of about 375° F. to about 500° F. without deforming, charring, and the like, in selected areas. Suitable substrates are fabrics, paper products, glass, ceramics, thermosetting resins such as phenolics, ureaformaldehyde and ureamelamine resins, thermosetting polyesters and crystalline linear polyesters such as polyethylene terephthalate. In this process a grounded, electrically conductive, shaped coating is formed on a portion of the area of the side of an electrically nonconductive, heatable substrate. Both the coated portion of the side and a portion of the remaining area of the side are then contacted with charged polymer particles and the charged polymer particles adhere only to the electrically conductive shaped coating and not to the remaining area of the side of the substrate. The coated portion of the side is then heated to form the polymer particles into a coating which is fused to the grounded, electrically conductive shaped coating and in the same shape as grounded, electrically conductive shaped coating. The polymer particles can be comprised of cellulose ester, polyolefin, polyester or mixtures thereof. In one particularly advantageous embodiment the polymer can be composed of a mixture of poly (1,4 - cyclohexylenedimethylene terephthalate/isophthalate) and cellulose acetate butyrate.

T914,002
WORKPIECE HOLDING FIXTURE

Douglas G. K. Franks, 6516 N. University, Apt. 1301, Peoria, Ill. 61614

Filed Mar. 13, 1972, Ser. No. 234,072
Int. Cl. B25b *1/18*
U.S. Cl. 269—20
3 Sheets Drawing. 8 Pages Specification



A fixture for securely holding a nonrotatable workpiece in a machine is provided having a housing and a pair of holding and clamping jaws which are movably supported for simultaneous movement toward or away from the workpiece in response to the activation of a double-acting fluid motor such as a hydraulic motor interconnecting the jaws. A timing device in the form of a pinion in simultaneous engagement with a rack on each jaw ensures synchronous movement of the jaws toward and away from each other in response, respectively, to extension and retraction of a rod of the motor by means of a piston movable within a cylinder of the motor. A pair of workpiece-supporting plates are vertically adjustably mounted by cap screws for positioning and supporting the workpiece for subsequent clamping by the jaws.

T914,003
FLEXIBLE, EPOXY-COATED DIELECTRIC

Richard Winthrop Bradt, Jr., Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

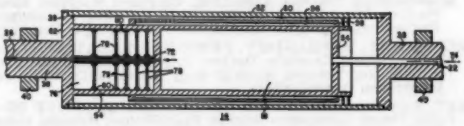
Continuation of application Ser. No. 76,976, Sept. 30, 1970. This application May 22, 1972, Ser. No. 255,698
Int. Cl. B32b *27/08*
U.S. Cl. 117—138.8 F
No Drawing. 10 Pages Specification

A dielectric of a flexible film base of a polyester or a polyamide coated on at least one side with a polyepoxide cured with an anhydride and optionally containing an inorganic filler such as talc. This dielectric is particularly useful for high temperature applications in insulating coils in electric motors, e.g. slot liners and phase liners, and for use as a base in preparing printed circuits.

T914,004
FLUID-COOLED ROTATING MEMBER WITH IMPROVED COOLANT EXHAUST STRUCTURE SUITABLE FOR SUPERCONDUCTING DYNAMOELECTRIC MACHINERY

Donald C. Litz, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 15, 1972, Ser. No. 263,039
Int. Cl. H02k *9/00*
U.S. Cl. 310—52
1 Sheet Drawing. 9 Pages Specification



In a fluid-cooled rotating member, such as a dynamoelectric machine rotor with superconducting windings, the fluid exhaust is used to cool structural members connecting ambient and cool zones in order to minimize heat flow to the cold elements. The coolant in the exhaust structure is confined to a path along the axis of rotation. This avoids radial coolant flow paths and radially displaced coolant flow paths in order to eliminate convection currents. The axially located coolant conduit **72** is surrounded by and spaced from a supporting sleeve **54** with a plurality of thermally conductive members **78, 79** extending between the coolant conduit and the supporting sleeve through an evacuated volume at axially spaced intervals.

T914,005
COATING COMPOSITIONS

Charles H. Coney, 2008 Canterbury 37660, and Glenna E. Burnett, 1701 John B. Dennis Bypass, Apt. 16 37664, both of Kingsport, Tenn.

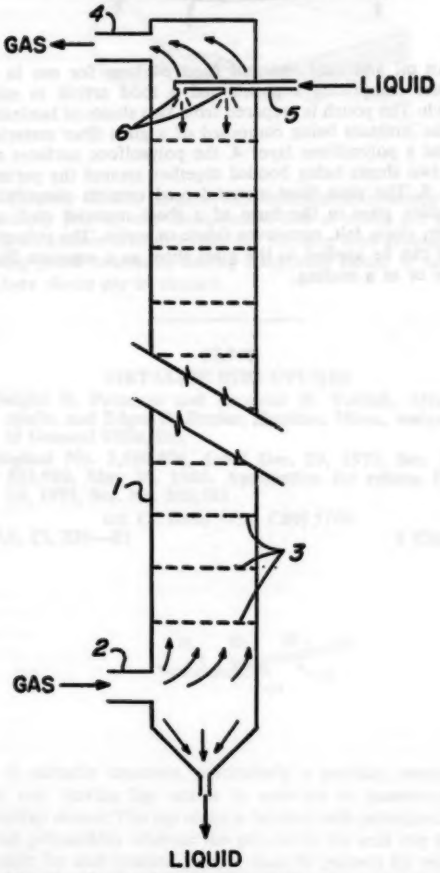
Filed Sept. 1, 1972, Ser. No. 285,788
Int. Cl. C08b *21/08*
U.S. Cl. 260—15
No Drawing. 6 Pages Specification

Liquid coating composition comprising a cellulose ester of at least one monocarboxylic acid having 2 to 4 carbon atoms, a urea formaldehyde or melamine compound, a silicone compound and acid catalyst is disclosed. This composition is applied in solution and is thermosetting. When cured, it provides a release coating which also imparts scuff resistance, heat resistance, water resistance and chemical resistance to the coated substrate. The cellulose ester and urea formaldehyde are present in major proportions, while the silicone compound and acid catalyst are present in minor quantities.

T914,006
MULTIGRID SCRUBBER FOR GAS-LIQUID STREAMS

Phebus C. Williamson, Rte. 7, Russellville, Ala. 35653, and Neal D. Moore, 76 Lynn Brook Circle, Chattanooga, Tenn. 37415

Filed Sept. 14, 1972, Ser. No. 289,074
Int. Cl. B01d *53/14*
U.S. Cl. 55—73
3 Sheets Drawing. 10 Pages Specification

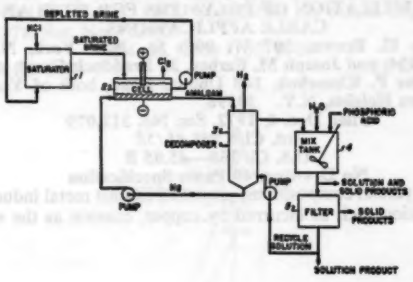


Means and methods for mass transfer from a gas stream to a liquid or a slurry stream by countercurrent contact in a vertical scrubber shell having a plurality of horizontally arranged grids. The purpose of the grids is to obtain intimate mixing of the two countercurrent streams to effect the desired mass transfer. Experience has shown that the grid packing has advantages over both the conventional fixed-bed scrubbers and the mobile-bed scrubbers. The multiple-grid scrubber is operational without excessive pressure drops at gas velocities up to and exceeding 1100 feet per minute, a significant velocity increase over the 500-foot-per-minute limit for the fixed-packing scrubber because of flooding and the 750-foot-per-minute operational limit because of excessive pressure drop for the mobile-packing scrubber. In addition to the increased gas velocity, the multiple-grid scrubber does not have the added disadvantage of sphere erosion experienced with the mobile-bed scrubbers.

T914,007
PRODUCTION OF CHLORIDE-FREE POTASSIUM PHOSPHATES

Travis P. Hignett, 704 Wilson Dam Circle, Sheffield, Ala. 35660, and Anthony J. Smith, 710 Prospect St., Florence, Ala. 35630

Filed Oct. 10, 1972, Ser. No. 296,296
Int. Cl. C05b *7/00*
U.S. Cl. 71—34
5 Sheets Drawing. 17 Pages Specification



A process for the production of chlorine, hydrogen, and high analysis chloride-free potassium orthophosphate and potassium polyphosphate fertilizers. Saturated potassium chloride brine and mercury are pumped into a mercury cell where the brine is electrolyzed to produce chlorine at the anode and potassium amalgam at the mercury cathode. Water and either orthophosphoric or polyphosphoric acid solution are fed to the decomposer unit where the amalgam is subsequently stripped of potassium in the production of hydrogen gas and potassium phosphate solution, solids, or solution with solids. Decomposition is effected with or without short-circuiting elements in the decomposer. The spent brine is resaturated with solid potassium chloride. The resaturated brine and the mercury recovered from the decomposed amalgam are recycled to the electrolysis cell. Stable potassium polyphosphate solutions as concentrated as 70 percent in plant food

$$(P_2O_5\% + K_2O\%)$$

are proposed; a concentration of 62 percent plant food was attained in a stable potassium polyphosphate solution with a pH of 7.67 and a density of 1.740 g./ml. at 25° C.

T914,008

REACTING UNSATURATED DICARBOXYLIC ACIDS, ANHYDRIDES AND ESTERS THEREOF WITH POLYETHYLENE

Richard L. McConnell, 421 Manderley Road, and Willis C. Wooten, Jr., 521 Lakewood Road, both of Kingsport, Tenn. 37660

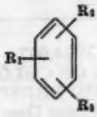
Continuation of application Ser. No. 105,634, Jan. 11, 1971. This application Oct. 12, 1972, Ser. No. 297,155

Int. Cl. C08f *27/00*

U.S. Cl. 260—78.4 D

No Drawing. 20 Pages Specification

A process for the preparation of a modified polyethylene composition comprising reacting polyethylene with an unsaturated polycarboxylic acid, anhydride or ester thereof in the presence of a free radical and a solvent having the formula



wherein each of R_1, R_2 and R_3 is hydrogen, alkyl having 1–10 carbon atoms, chlorine, bromine, bromoalkyl having 1–10 carbon atoms and 1–3 bromine atoms, chloroalkyl having 1–10 carbon atoms and 1–3 chlorine atoms, and products thereof. These modified polyethylenes are substantially non-crosslinked, have saponification numbers of at least 6 and are useful as adhesives, emulsifiable products, and coating materials.

T914,009

STABILIZATION OF POLYMERS FOR WIRE AND CABLE APPLICATIONS

Wade H. Brown, 307 W. 90th St., New York, N.Y. 10034; and Joseph M. Farber, 28 Braddock Court; and Peter P. Klemchuk, 148 Upland Road, both of Yorktown Heights, N.Y. 10598

Filed Dec. 4, 1972, Ser. No. 312,079

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 B

No Drawing. 40 Pages Specification

Polyolefin compositions, protected against metal induced oxidation such as incurred by copper, contain as the stabilizer system therefor a phenol antioxidant, a nitrogenous metal deactivator and a thiodiacid ester synergist. Exemplary of such compounds are pentaerythritol tetrakis-[3 - (3',5' - di-t.butyl-4'-hydroxyphenyl)propionate], 2,2'-thiodiethanol di-β-(3,5-di-t-butyl - 4 - hydroxylphenyl)propionate, oxanilide, N,N'-di-acetyladipic acid dihydrazide and dilauryl thiodipropionate.

Their improved oxidation resistivity renders them particularly suitable for wire and cable insulation.

T914,010

NONMETALLIC PLASTIC AND GLASS FIBER TOASTER PACKAGE

William L. Hamilton, Wilmington, Del., and William E. Lindsey, Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of abandoned application Ser. No. 189,814, Oct. 18, 1971. This application May 4, 1973, Ser. No. 357,090

Int. Cl. B65b *25/22*

U.S. Cl. 99—171 H

1 Sheet Drawing. 7 Pages Specification

An oil and heat resistant food package for use in a toaster comprising a pouch and a food article in said pouch. The pouch is prepared from two sheets of laminate **2**, the laminate being composed of a glass fiber material **3** and a polysulfone layer **4**, the polysulfone surfaces of the two sheets being bonded together around the perimeter **5**. The glass fiber material used consists essentially of silica glass in the form of a sheet material such as paper, cloth, felt, nonwoven fabric or scrim. The polysulfone can be applied to the glass sheet as a separate film layer or as a coating.

REISSUES

SEPTEMBER 11, 1973

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

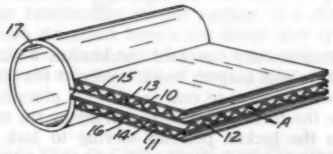
27,747
STRUCTURAL ARTICLES AND METHOD OF MAKING

James R. Johnson, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Original No. 3,444,925, dated May 20, 1969, Ser. No. 331,649, Dec. 17, 1963, which is a continuation of abandoned application Ser. No. 26,372, May 2, 1960, which is a continuation-in-part of abandoned application Ser. No. 746,263, July 2, 1958, which in turn is a continuation-in-part of Ser. No. 657,503, May 7, 1957. Application for reissue May 17, 1971, Ser. No. 143,868

Int. Cl. F28f *3/00*

U.S. Cl. 165—166 25 Claims



Ceramic articles of generally honeycomb structure essentially free of any demarcation line at nodes are provided together with processes for forming such articles by firing green structures having temporary bonds at nodes where sheets are in contact.

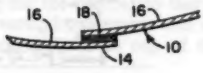
27,748
METALLIC STRUCTURES

Dwight E. Peerman and Leonard R. Vertnik, Minneapolis, and Edgar R. Rogier, Hopkins, Minn., assignors to General Mills, Inc.

Original No. 3,550,806, dated Dec. 29, 1970, Ser. No. 552,980, May 25, 1966. Application for reissue Dec. 16, 1971, Ser. No. 208,581

Int. Cl. B65d *7/34*; C09j *5/00*

U.S. Cl. 220—81 6 Claims



A metallic structure, particularly a metallic container or can, having lap seams in contrast to conventional hooked seams. The lap seam is bonded with polymeric fat acid polyamides wherein the polymeric fat acid has a dimeric fat acid content greater than 90 percent by weight and preferably greater than 95 percent by weight.

27,749
METHOD OF MAKING SOFTENED FABRICS

Leonard D. Kurtz, Woodmere, N.Y., assignor to Sutures, Inc., Coventry, Conn.

No Drawing. Original No. 3,379,091, dated Apr. 23, 1968, Ser. No. 366,187, May 8, 1964, which is a continuation-in-part of Ser. No. 220,085, Aug. 28, 1962, Ser. No. 230,284, Oct. 12, 1962, Ser. No. 312,328, Sept. 30, 1963, and Ser. No. 323,891, Nov. 15, 1963. Application for reissue Aug. 17 1970, Ser. No. 64,584

Int. Cl. D04c *1/06*

U.S. Cl. 87—1 4 Claims

1. A method of fabricating a pliable [material] *polyester thread* comprising the steps of providing a drafted filament[s], hot-stretching said drafted filament to reduce the elastic memory thereof, and subsequently [interlacing] *braiding* a plurality of said hot-stretched filaments into a composite [material] *thread*.

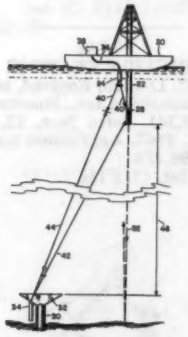
27,750
UNDERWATER GUIDANCE METHOD AND APPARATUS

Charles K. Daniels, Weston, and John P. McCarthy, Cohasset, Mass., assignors to EG&G International, Inc., Bedford, Mass.

Original No. 3,458,853, dated July 29, 1969, Ser. No. 659,186, Aug. 8, 1967. Application for reissue Sept. 8, 1970, Ser. No. 70,603

Int. Cl. G01s *7/52, 9/66*

U.S. Cl. 340—3 R 13 Claims



Method and apparatus for guiding equipment, such as a drill string or blow-out preventer stack, from an ocean platform to a submarine wellhead, including producing at the equipment first acoustical pulses which radiate toward the platform and wellhead; producing at the wellhead second acoustical pulses in response to first acoustical pulses received from the equipment, the second acoustical pulses being radiated toward the platform; receiving the first and second acoustical pulses at the platform; measuring the time difference of arrival at the platform of the first and second acoustical pulses; maneuvering the platform until this time difference becomes a minimum; lowering the equipment when this time difference is a minimum; directively reflecting a portion of the first acoustical pulses from the wellhead back toward the equipment and toward the platform as reflected acoustical pulses; receiving part of the reflected

acoustical pulses at the platform; maneuvering the platform until the amplitude of the received reflected acoustical pulses becomes a maximum; and lowering the equipment into the wellhead when the amplitude of the received reflected acoustical pulses is a maximum.

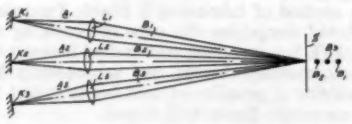
27,751
CATHODE RAY TUBE FOCUSING AND CONVERGING SYSTEM

Susumu Yoshida and Akio Ohgoshi, Tokyo, Senri Miyaoka, Fujisawa, and Yoshiharu Katagiri, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Original No. 3,448,316, dated June 3, 1969, Ser. No. 697,414, Jan. 12, 1968. Application for reissue Oct. 13, 1971, Ser. No. 188,847

Int. Cl. H01j *29/56, 31/20*

U.S. Cl. 313—69 C **32 Claims**



A color picture tube or other cathode ray tube employing a plurality of electron beams includes a single electron gun having one or more cathodes emitting electrons formed into the plurality of beams which are made to converge or cross each other substantially at the optical center of an electrostatic focusing lens by which the beams are focused on the electron-receiving screen of the tube, whereby to avoid spherical aberration and/or coma. When the beams focused on the electron-receiving screen are all to converge at a common point on such screen, an electrostatic or magnetic deflection device acts on those beams which diverge after passing through the lens-like focusing system.

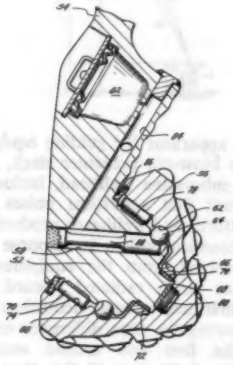
27,752
FRICTION BEARING

James L. Hickernell, London, England, assignor to G. W. Murphy Industries, Inc., Houston, Tex.

Original No. 3,480,341, dated Nov. 25, 1969, Ser. No. 675,424, Oct. 16, 1967. Application for reissue Nov. 8, 1971, Ser. No. 196,454

Int. Cl. F16c *33/12*

U.S. Cl. 308—8.2 **9 Claims**



An improved friction bearing which in its preferred form is applied to a conical cutter-type earth boring drill bit and includes a sintered tungsten carbide bushing held in compression by the cutter, the tungsten carbide particles before sintering have a size range of 0.8 to 6 microns, the bushing engaging a tungsten carbide bearing surface on the shaft, the tungsten carbide particles forming said surface initially having a size of minus 30 mesh with a substantial portion of the particles having a size of minus 40 mesh. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

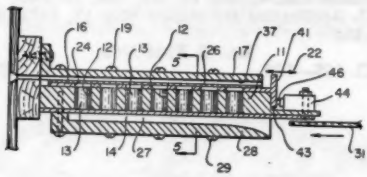
27,753
MAGNETICALLY OPERATED MECHANISM AND MAGNETIC CARD

Bruce S. Sedley, Larkspur, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Original No. 3,444,711, dated May 20, 1969, Ser. No. 592,006, Nov. 4, 1966. Application for reissue June 19, 1972, Ser. No. 263,870

Int. Cl. E05b *47/00*

U.S. Cl. 70—276 **7 Claims**



A magnetically operated mechanism which includes a lock plate and magnet block mounted for relative movement with respect to one another. A plurality of locking pins in the form of magnets carried by the magnet block and in the locked position serving to lock the magnet block and lock plate so that they cannot move relative to one another. Said mechanism being unlocked by means of a card having magnetic spots at selected areas whereby to permit relative movement of the magnet block and lock plate to operate associated apparatus.

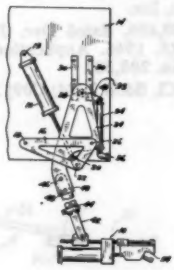
27,754
FLAT PATH EXTRACTOR

Edward H. Rofe, 2781 Acorn Road, Bloomfield Hills, Mich. 48013

Original No. 3,387,717, dated June 11, 1968, Ser. No. 494,740, Oct. 11, 1965. Application for reissue June 8, 1970, Ser. No. 44,668

Int. Cl. B23q *7/04*

U.S. Cl. 214—1 BD **10 Claims**



An improved work handling device for presses having a desired flat work handling arm path and simple actuating mechanism including a single acting hydraulic snubber adapted to provide no resistance over the major portion of the upward arm stroke, a cushioning or resistance stop at the end of the upward stroke, no resistance in the initial accelerating portion of the down stroke, and with cushioned controlled descent thru the remaining major portion of the down stroke.

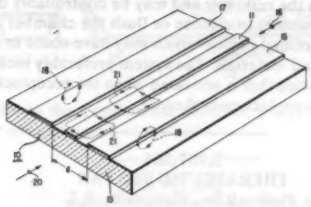
27,755
SURFACE STRIP TRANSMISSION LINE AND MICROWAVE DEVICES USING SAME

Cheng Paul Wen, Trenton, N.J., assignor to RCA Corporation

Original No. 3,560,893, dated Feb. 2, 1971, Ser. No. 787,349, Dec. 27, 1968. Application for reissue Oct. 14, 1971, Ser. No. 189,242

Int. Cl. H01p *3/08*

U.S. Cl. 333—24.1 17 Claims



A desirable transmission line configuration is described wherein a narrow strip-like conductor and a wider ground conductor are arranged in an adjacent, parallel and coplanar relationship on one surface of a dielectric substrate. Also described herein are many new types of microwave devices such as isolators, phase shifters, couplers, etc. which use this type of transmission line configuration.

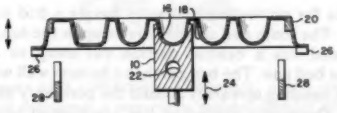
27,756
AUTOMATED INCUBATION APPARATUS

Donald N. Martin, Whittier, Calif., assignor to Beckman Instruments, Inc.

Original No. 3,556,731, dated Jan. 19, 1971, Ser. No. 699,569, June 22, 1968. Application for reissue June 29, 1971, Ser. No. 158,644

Int. Cl. G01n *1/00*

U.S. Cl. 23—253 R 9 Claims



An incubator for use in automated chemical analyzer systems having the form of a serrated block of aluminum or the like, each serration or tooth being hollowed out and having an inner surface into which the outer surface of a capsule cup is adapted to fit snugly, the aluminum block containing a heater controlled by a thermoswitch and serving by contact with the capsule cup to heat liquid contained in the cup for the incubation thereof, the block being mounted for vertical movement and adapted to be brought up to engage around the cup of the capsule.

27,757
STANDBY DEFIBRILLATOR AND METHOD OF OPERATION

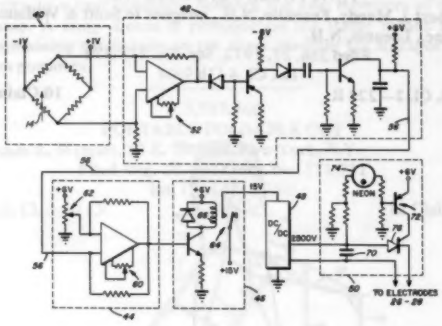
Mieczyslaw Mirowski, Rte. 3, Velvet Valley Way, Owings Mills, Md. 21117

Original No. 3,614,955, dated Oct. 26, 1971, Ser. No. 9,935, Feb. 9, 1970. Application for reissue Feb. 25, 1972, Ser. No. 229,592

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 D 6 Claims

A method and means for automatically defibrillating a malfunctioning heart. With the present invention, the heart function is continuously monitored. When the function becomes abnormal, the malfunctioning heart is automatically shocked by a voltage of substantial size. If the



heart does not return to its normal functions after a given interval, then it is again shocked. Normal heart activity ensures that the shocking mechanism remains inert.

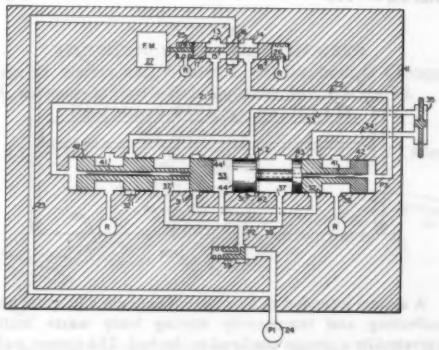
27,758
FLUID FLOW CONTROL VALVE

James Otto Byers, Racine, Wis., assignor to Sanders Associates, Inc., Nashua, N.H.

Original No. 3,561,488, dated Feb. 9, 1971, Ser. No. 838,062, July 1, 1969. Application for reissue Oct. 24, 1972, Ser. No. 300,013

Int. Cl. F16k *11/07*

U.S. Cl. 137—625.62 34 Claims



A two-stage fluid flow control valve is described in which the rate of flow of fluid to the load depends solely on the input signal and is independent of load pressure. The second stage spool and housing are formed so that upon movement of the spool in response to fluid pressure from the first stage, two different-sized passageways are opened simultaneously to the load conduit. The smaller communicates with the *fluid pressure from the first stage while the larger communicates with the* second-stage fluid pressure source. Analysis shows that this results in a fixed flow rate for each value of input signal.

PATENTS

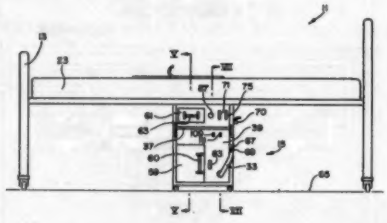
GRANTED SEPTEMER 11, 1973

GENERAL AND MECHANICAL

3,757,354
PANTYHOSE CONSTRUCTION
Robert J. Moody, Franklin, N.H., assignor to Scott & Williams, Inc., Laconia, N.H.
Filed Jan. 27, 1972, Ser. No. 221,374
Int. Cl. A41b *9/04*
U.S. Cl. 2—224 R **10 Claims**

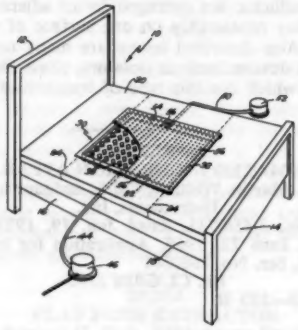
A pantyhose garment of various constructions includes at least in a portion of the panty adjacent the crotch and preferably throughout the panty a terry stitch structure on either the outside or inside of the garment. The terry construction prevents runs and laddering adjacent the crotch and also provides softness, absorbency and opacity wherever it is used.

3,757,355
PORTABLE BODY WASTE COLLECTING SYSTEM
Ralph Y. Allen, and Judd F. Allen, 107 Fifth Ave., both of Cleveland, Miss., assignors to said Judd F. Allen, by said Ralph Y. Allen
Filed Sept. 9, 1971, Ser. No. 179,062
Int. Cl. E03d *13/00*; **A61g** *9/00*, *7/02*
U.S. Cl. 4—110 **2 Claims**



A system intended to be wheeled beneath a hospital bed for collecting and temporarily storing body waste materials excreted by a person confined to the bed. The system includes a cart having cabinet structure thereon which encloses the apparatus supported on the cart. The mattress of the bed is provided with an aperture that receives a drain pipe which communicates with a disposable waste receptacle supported by the cart. A chamber communicated with the drain pipe is positioned on the upper side of the mattress for engaging the obvious areas of the confined person to initially collect the excreted materials and direct them into the drain pipe. The chamber may be fixedly attached to the lower torso of the confined person so that even though his consciousness or body waste emitting system may be impaired, the likelihood of soiling his gown and/or bed linens is obviated. A flapper valve is positioned within the drain pipe to minimize offensive odors and which opens by the weight of the excreted materials, thus allowing passage thereof to the receptacle. A reservoir is mounted on the cart and contains a quantity of temperature-controlled water having an antiseptic therein. A nozzle communicates with the reservoir and may be controllably directed by hospital personnel to cleanse or flush the chamber and the areas of the confined person which may have come in contact with the excreted materials. The system preferably includes an audio alarm device that is activated when the receptacle is full to assure timely replacement thereof.

3,757,356
THERAPEUTIC BED PAN
Harry Freeman, Halliwell Dr., Slatersville, R.I.
Filed July 13, 1972, Ser. No. 271,290
Int. Cl. A61g *9/00*
U.S. Cl. 4—112 **10 Claims**

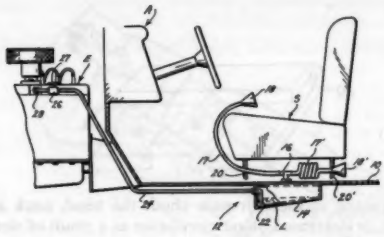


A device for preventing bed sores having a bed pan and a foam pad. The foam pad normally rests upon the top of a bed mattress and has a central portion cut away to matingly receive the bed pan. The bed pan has a bottom wall with vertical walls extending upwardly around the periphery of the bottom wall. Outwardly extending lips are formed around the periphery of the vertical walls and these seat into a recess around the top of the opening so that they lie flush with the top of the foam pad. A plurality of laterally spaced hollow platforms extend upwardly from the bottom wall with the space between the platforms forming drain channels. An air intake nozzle is connected to one of the vertical walls of the bed pan and it in turn is connected to a source of air and oxygen under pressure whose mixture can be controlled. A drain nozzle is also connected to one of the sides of the bed pan adjacent the bottom thereof and it in turn is connected to a vacuum exhaust pump. A perforated cover is removably supported on top of the bed pan.

3,757,357
LIQUID BODY WASTE DISPOSAL SYSTEM
Edward Howard Smith, 57 Elizabeth St., St. Charles, Mo.
Filed Jan. 11, 1971, Ser. No. 105,181
Int. Cl. B60r *15/04*
U.S. Cl. 4—114 **1 Claim**

A Body Waste Disposal (liquid) System which makes disposition of the fluid by burning in the combustion chamber

of the associated internal combustion Engine. It consists of a receptacle, small reservoir, metering valve and connecting hose. The vaccuum in the intake manifold of the Engine draws



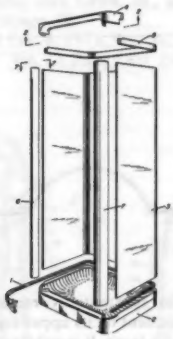
the fluid into the Combustion chamber where it is burned by the heat of combustion of the fuel.

3,757,358

FREE-STANDING SHOWER

James Edwards Chisholm, Safety Harbor, Fla.; Clark Thomas Hicks, Ft. Thomas, Ky., and Anthony Buonaura, Baldwinsville, N.Y., assignors to Formica Corporation, Cincinnati, Ohio

Filed Apr. 24, 1972, Ser. No. 246,618
Int. Cl. A47k *3/22, 3/23*
U.S. Cl. 4—146 **34 Claims**



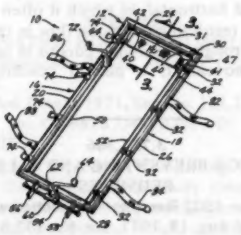
A shower stall comprising a receptor, a one-piece, three-sided wall surround, a one-piece molded header and a pair of elongated stile members, is disclosed.

3,757,359

LITTER DEVICE

Gerald E. Stellman, R.R. No. 3, Adel, Iowa

Continuation-in-part of Ser. No. 52,022, July 2, 1970, Pat. No. 3,639,926. This application Apr. 21, 1971, Ser. No. 135,908
Int. Cl. A61g *1/02, 7/10*
U.S. Cl. 5—81 **9 Claims**



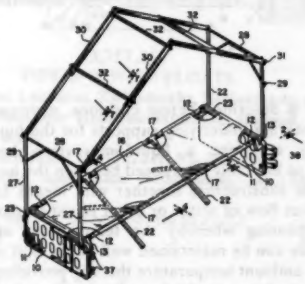
A litter device comprising a frame means having opposite side members and opposite end members and having a rectangular flexible sheet member supported thereon. The sheet member is initially secured at one end thereof to one end of the frame means and is pulled beneath the person by means of a winch means or the like operatively connected to the other end of the frame means and having a cable means extending to the sheet member. After the sheet member has been pulled beneath the person, one side of the sheet member is secured to one side of the frame means. The other side of the sheet member is then connected to a tensioning means mounted on the other side member to enable the sheet member to be drawn to a taut condition between the side members of the frame. A strap means is provided on the frame means for maintaining the person on the sheet member for transportation purposes.

3,757,360

PORTABLE FOLDABLE COT

James A. Wescott, 33 E. 70th St., New York, N.Y.

Filed Aug. 16, 1971, Ser. No. 171,931
Int. Cl. A47c *29/00*
U.S. Cl. 5—113 **12 Claims**



A portable, folding cot in which a pair of rectangular-shaped support members, which support the ends of the cot, may be pivotably coupled together at one end and secured at the other end to provide a transportation enclosure for the structural members comprising the cot. A plurality of elongated rigid support members, T-shaped coupling members, and X-shaped legs are joined together to support the cot, in conjunction with the end members, during use. A tent supporting structure may be provided, if desired.

3,757,361

ADJUSTABLE BED FRAME MEMBER

George M. Harris, and Wilbert E. Behnke, both of Chicago, Ill., assignors to Harris-Hub Company, Inc., Harvey, Ill.

Filed Mar. 7, 1972, Ser. No. 232,474
Int. Cl. A47c *19/00*
U.S. Cl. 5—184 **7 Claims**

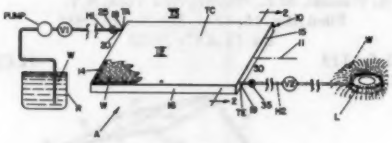
An improved adjustable cross frame member for use in a bed frame having side frame members and another such adjustable cross frame member. The improved member is comprised of first and second elongate L-shaped elements having mutually perpendicular legs. The first element is provided with a plurality of pairs of longitudinally spaced keyhole shaped slots in one leg, each slot having a narrow portion and an enlarged portion, and the second element is provided with a pair of rivets on the corresponding leg, longitudinally spaced to match the slot spacing. The rivets have an enlarged head and a narrow shank portion matching the corresponding slot portions in width so that upon positioning the elements in leg abutting engagement and longitudinally moving the elements relative to each other, the rivets are positioned in the narrow slot portions and hold the elements together positively. In order to lock the elements longitudinally in this position, the

first element includes position defining apertures between each pair of slots, and the second element includes a releasable resilient member having a detent between the rivet pair which engages a position defining aperture when the rivets become positioned in the narrow slot portions.

3,757,362
LIQUID-COOLED UNDERLYING SUPPORT FOR THE HUMAN BODY

Calvin E. Bowlin, 7124 N. 65th Ave., and Anthony E. Dombrowski, 9903 Broadmoor Dr., both of Omaha, Nebr.

Filed Aug. 30, 1971, Ser. No. 175,823
Int. Cl. A47c 27/08, 23/00
U.S. Cl. 5—348 WB **7 Claims**

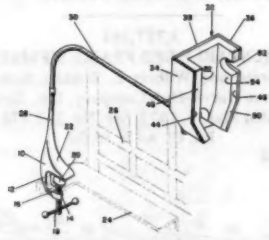


There is described herein cushions, mattresses, and other weight-bearing underlying supports for the human body that generally comprise a liquid-impervious hollow housing adapted to be stably interposed between the human body and a suitable substructure together with means for providing a continuous flow of water or other liquid-coolant through the hollow housing whereby the temperature at the housing upper-side can be maintained well below that of atmospheric or other ambient temperature thereby providing a cooling effect upon a human subject resting against the housing thermally-conductive upper-side.

3,757,363
PATIENT COMMUNICATOR SUPPORT

Joseph E. Langlais, 1614 E. Hudson Dr., Tempe, Ariz.

Filed Sept. 10, 1970, Ser. No. 71,276
Int. Cl. A47c 21/00
U.S. Cl. 5—317 R **1 Claim**



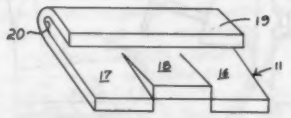
A patient communicator support having clamp means adapted to be clamped onto a hospital bed or other patient's bed, and having a bendable arm holding a cradle for supporting a communication instrument in various adjusted positions, and in juxtaposition relative to the patient and according to his desire; the cradle of the invention having a pair of spaced apart walls to which are secured respective layers of compressible material adapted frictionally to engage opposite sides of a communication instrument.

3,757,364
SLEEPING PILLOW

John Charles Downing, 231 Edna St., San Francisco, Calif.

Filed Mar. 31, 1972, Ser. No. 240,004
Int. Cl. A47g 9/00
U.S. Cl. 5—338 **5 Claims**

A two level dual firmness pillow construction which intrinsically affords effective support for maintaining optimum head and neck posture while sleeping on the back or either side of the body and which reduces to a minimum the liklihood of

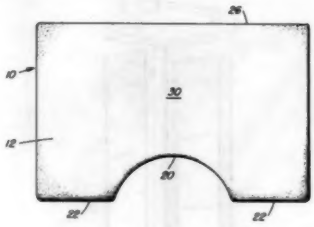


muscle spasms, stiffness or pain about the head, neck and shoulders, or decreased blood circulation as a result of sleeping or reclining.

3,757,365
THERAPEUTIC PILLOW

Murray Kretchmer, 2025 N.E. 164th St., North Miami Beach, Fla.

Filed Jan. 10, 1972, Ser. No. 216,560
Int. Cl. A47g 9/00
U.S. Cl. 5—338 **2 Claims**



This pillow is a flat substantially rectangular block of material that is more resilient on its upper top layer and is less resilient on its lowermost layer. It is substantially rectangular overall, but has a cutout in at least one of the longer rectangular sides, although this cutout may be repeated in the opposite rectangular side. The cutout is substantially circular, more or less, and is not greater than a semi-circle, although it may be somewhat less than a semi-circle, the cutout serving to receive the sleeper's shoulder with the attached arm extendable beyond the pillow and not subject to any pressure from the pillow, being entirely free thereof, and, of course, free of any pressure from the sleeper's head. The thickness of the pillow is such that the sleeper's head is supported in a horizontal position, with the neck and windpipe free of any bends. As a result, breathing is freer than with a conventional pillow, where the arm is often extended under the pillow attempting to hold the head horizontal, in which it often fails, but such does succeed in restricting the blood flow in the arm, leading to a condition strongly resembling bursitis in pain and restriction of arm movement, a painful condition not easily remedied.

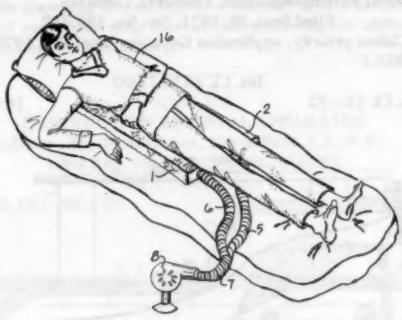
3,757,366
CUSHION FOR PREVENTING AND ALLEVIATING BEDSORES

William S. Sacher, 1022 Rambler Ave., Pottstown, Pa.

Filed Aug. 18, 1971, Ser. No. 172,819
Int. Cl. A47c 27/08, 7/14
U.S. Cl. 5—347 **12 Claims**

Cushions and cushion arrangements for preventing and alleviating bedsores comprising a cushion structure including a

casing having a porous upper portion of artificial sheepskin or similar material, a resilient cushion within the casing, means for supplying temperature-controlled air to the casing, and



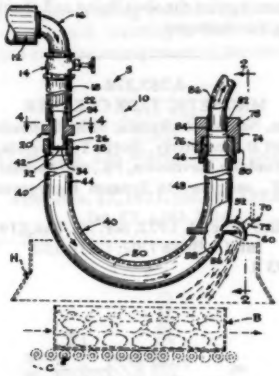
means within the casing for directing the air so as to cause it to pass through the porous upper portion of the casing, over substantially the entire area thereof, into contact with the body of the user.

3,757,367

METHOD FOR CARBON DIOXIDE SNOW SEPARATION

Ronald F. Campbell, Oak Lawn, Ill., assignor to Chemetron Corporation, Chicago, Ill.

Filed Feb. 8, 1971, Ser. No. 113,489
Int. Cl. F25j *1/00, 3/00*
U.S. Cl. 62—10 **16 Claims**



Improved method and apparatus for separating carbon dioxide snow from a mixture of carbon dioxide snow and vapor, without reference to gravity, in order to deliver carbon dioxide snow and vapor each at a substantial rate of flow.

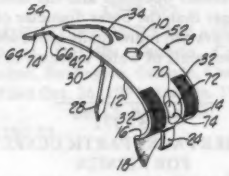
3,757,368

COMBINATION HOUSEHOLD IMPLEMENT

Clarence E. Thompson, 29322 Whitley Collins Dr., Palos Verdes, Calif.

Filed June 9, 1971, Ser. No. 151,279
Int. Cl. B67b *7/44*; B25f *1/00*
U.S. Cl. 7—14.25 **11 Claims**

A multi-purpose implement comprising a curved body adapted to fit the hand when partially closed, one end of which is provided with a can top pouring aperture forming element, an intermediate portion which comprises an air hole piercing element, the can top being punctured by downward pressure of the hand of the user over the can or other container, as distinguished from upward levering hand action, the body of the implement being provided with means for engaging a finger ring worn by the user to assist in holding the implement, the air hole punch being struck from the body and providing an aperture with opposed parallel edges providing a



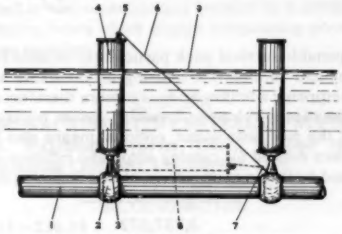
wrench for nuts and bolts, other portions of the implement including bull-noser means, crimped bottle top remover means, cord cutting means, screw driver means, and square or hexagonal nut manipulating means, all of which are within the thickness of the strip of metal comprising the body.

3,757,369

PIPELINE WITH FLOATS

Johannes Bertus Laarman, Zwijndrecht, Netherlands, assignor to N.V. Industrieele Handelscombinatie, Holland, Rotterdam, Netherlands

Filed Jan. 17, 1972, Ser. No. 218,207
Claims priority, application Netherlands, Jan. 18, 1971, 7100651
Int. Cl. B63c *7/08*; B63b *21/52*
U.S. Cl. 9—8 R **6 Claims**



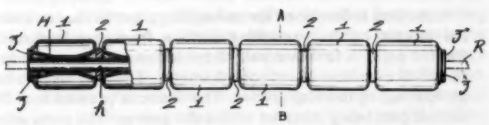
A pipeline is supported in the water by slender upright floats that are articulated to the pipeline. Each float carries a waterproof winch at its upper end that is connected by a cable to a point on the pipeline at least as far away from the associated float as the height of the associated float. When the winch is operated, the float is drawn down toward a horizontal position thereby to raise the pipeline.

3,757,370

ROPE AND FLOAT ASSEMBLY FOR USE AS A COURSE DEMARCATION LINE IN A SWIMMING POOL

Hisao Seno, and Fushi Seno, both of No. 31-14, Shinmachi 2-chome, Setagaya-ku, Tokyo, Japan

Filed May 10, 1972, Ser. No. 251,981
Int. Cl. B63b *51/02*; E04h *3/19*
U.S. Cl. 9—8 R **2 Claims**



A rope and float assembly for use as a course demarcation line in a swimming pool comprising a rope, a synthetic resin

sleeve disposed about said rope, a plurality of hollow cylindrical synthetic resin float members disposed about said sleeve with annular synthetic resin spacers interposed therebetween. The float members have tapered center openings and the spacers also have center openings. The smmalest diameter of the float member center openings and the inner diameter of the spacers are larger than the outer diameter of the sleeve so that the float members can individually move about the sleeve in response to movements of water currents in the swimming pool.

3,757,371

SURVIVAL OR LIKE PACKS PARTICULARLY SUITABLE FOR AIRMEN

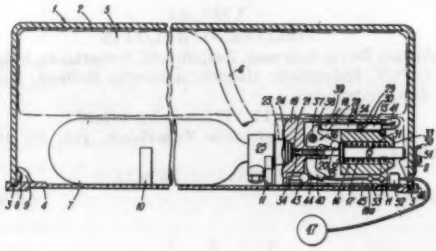
James Martin, Southlands Manor, Southlands Rd., Near Uxbridge, England

Filed Nov. 24, 1971, Ser. No. 201,838

Claims priority, application Great Britain, Dec. 21, 1970, 60,682/70

Int. Cl. B63c *9/16, 9/24*

U.S. Cl. 9—316 **3 Claims**



An openable survival pack particularly suitable for an ejection seat and suitable for housing an inflatable article, the pack comprising a hollow body; a closure therefor; and means for automatically releasing fastening means on said pack on entry of the pack into water, optional means also being provided when desired for causing automatic inflation of the article housed by the body on release of said fastening means.

3,757,372

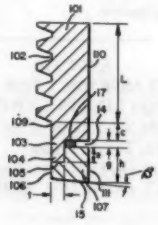
METHOD OF FORMING A NUT

Norman C. Dahl, 78 Irving Pl., New York, N.Y., and Joseph A. Tabor, 100 Midland Ave., Port Chester, N.Y.

Filed Feb. 3, 1972, Ser. No. 223,156

Int. Cl. B21d *53/24*

U.S. Cl. 10—86 R **10 Claims**



A method is described for assembling a nut having an external groove on its wrenching surface from two separately formed parts. A first internally threaded part has an extending sleeve-like portion of reduced diameter. The second part has an internal cylindrical groove. The sleeve is pressed into the second part being received within the groove. The parts when assembled define an annular external groove on the wrenching surface of the sleeve. Separately forming the parts and then assembling eliminates machining the external groove and lowers the cost of the nut.

3,757,373

APPARATUS FOR CEMENTING TOGETHER CUT-TO-SIZE SHANK UPPER MATERIAL

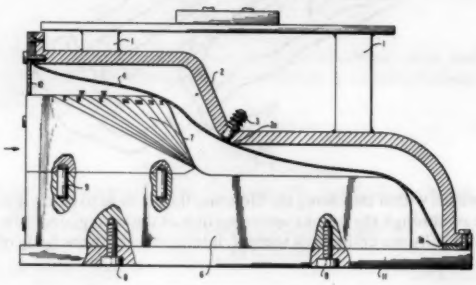
Erich Betke, Troisdorf-Spich, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed Sept. 30, 1971, Ser. No. 185,057

Claims priority, application Germany, Sept. 30, 1970, P 20 48 021.1

Int. Cl. A43d *11/00*

U.S. Cl. 12—52 **10 Claims**



An apparatus for bonding a shoe lining with a shank upper material, one of which is provided with a pressure-activated adhesive cement, which comprises bottom mold means for supporting the lining and shank material to be bonded; an upper mold means having an air intake means and an elastic means secured to said upper mold to define a chamber in communication with said air intake means, said chamber being expanded by introducing air through said intake means to press the elastic means against the shoe lining and shank material to effect bonding therebetween.

3,757,374

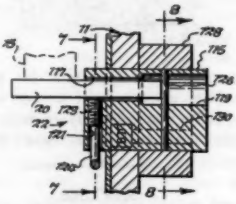
MAGNETIC TAPE CLEANER

John Y. Baskin, North Tonawanda; Miles D. Bender, East Amherst; Robert D. Daugherty, North Tonawanda, all of N.Y.; Charles L. Fontana, Levittown, Pa., and Samuel G. Johnson, Snyder, N.Y., assignors to Syncom Incorporated, Buffalo, N.Y.

Filed June 21, 1972, Ser. No. 264,819

Int. Cl. B08b *1/02;* **G11b** *5/00*

U.S. Cl. 15—93 R **7 Claims**



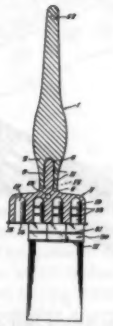
Apparatus for cleaning magnetic tape wherein tape is transported from a supply reel into scraping or wiping contact with the edge of a blade and then onto a take-up reel. The blade has a plurality of cutting edges and a length at least twice the width of the tape to be cleaned. A portion of the blade is releasably held in a chamber of a blade holding member in a manner exposing a portion of the blade length at least equal to the width of the tape. The blade holding member, in turn, is selectively rotatably connected in the apparatus so that each of the blade edges can be used in succession. When all the exposed edges of the blade have been used, it is removed from

the holder and reinserted with the previously unexposed portion ready for use thereby doubling the useful blade life. Each tape reel is held on the apparatus by a hub assembly having an expander which is urged radially outwardly by an axially movable clamping means into firm contact with a surface of the reel center opening thereby compensating for different size openings of various reels.

3,757,375
OBSTRUCTION REMOVAL APPARATUS
Martin Strom, 261-01 69th Ave., Floral Park, L.I., N.Y.
Filed Aug. 18, 1971, Ser. No. 172,749
Int. Cl. B08b 9/02
U.S. Cl. 15—104.3 SN **34 Claims**

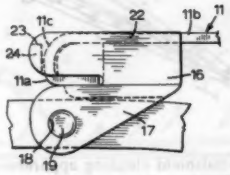
A device for extracting obstructions from confined spaces includes a flexible outer shaft movable relative to an inner central member. The central member is attached to the outer shaft and in a first embodiment, contains one or more teeth or claws. Upon insertion of the device into an obstructed space, the claws are retracted inside the shaft for easy passage past the obstruction. During withdrawal of the device from the space, the claws become extended beyond the outer shaft, thereby facilitating positive engagement of the obstruction. In an alternative embodiment, the claws are replaced by one or more sections of the outer shaft having longitudinal slits or striations. During insertion of the device, the slitted sections are expanded longitudinally, narrowing these sections for easy passage into the pipe. During withdrawal, the sections are longitudinally compressed, resulting in their radial expansion or bellowing, and enabling engagement of the obstruction.

3,757,376
TOOL
James Eric Coombes, 135 Wardrew Rd., Exeter, Devon, England
Filed Nov. 17, 1971, Ser. No. 199,673
Int. Cl. A46b 7/04
U.S. Cl. 15—202 **6 Claims**



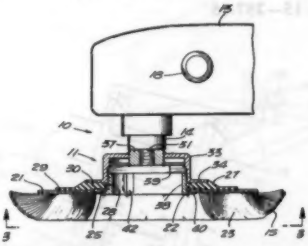
A paint brush is composed of several parts removably attached to one another, being a handle, a stock and one or a plurality of brush head units. Sockets and spigots which form an interference fit in the socket are used to join the parts. In particular the handle has a socket into which a spigot on a stock is pushed and spigots on the brush head units are pushed into sockets at the other end of the stock to form a brush of conventional shape. Stocks are provided with different numbers of sockets to receive different numbers of brush head units to make up brushes of different sizes as desired. Brush head units are replaceable individually after wear.

3,757,377
WINDSHIELD WIPER CLIP ASSEMBLIES
George Hayhurst, Oakville, Ontario, Canada, assignor to Tridon Limited, Burlington, Ontario, Canada
Filed Oct. 26, 1971, Ser. No. 192,426
Int. Cl. B60s 1/40
U.S. Cl. 15—250.32 **3 Claims**



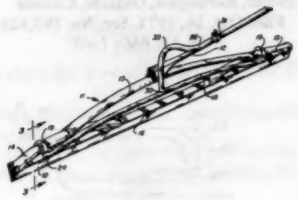
A windshield wiper clip assembly for mounting a windshield wiper on to a wiper arm of shepherds crook configuration comprises a body of U-shape side cross-section which is closely embraced by the crook-shaped end, with outwardly-extending side walls forming a groove in which the arm lies. The side walls have facing projections which are spread apart when the arm is pressed into the groove and spring back behind it to retain it on the body, the projections having cam-faces inclined to facilitate this spreading apart. The assembly may be mounted on the wiper backing member by a saddle-shaped portion having bores which engage cooperating pivot pins on the backing member.

3,757,378
BUFFING MACHINE WITH CENTERLESS BUFFER PAD
Orval W. Wakefield, Cypress, Calif., assignor to Pit-Bar Manufacturing Company, Los Angeles, Calif.
Filed June 23, 1971, Ser. No. 155,713
Int. Cl. B24b 29/00
U.S. Cl. 15—230.19 **3 Claims**



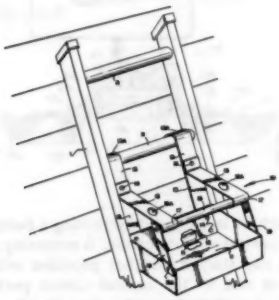
A buffing machine is disclosed for driving a buffer pad constructed with a central cutout portion. A mounting unit for the pad includes a cup shaped member provided with a mouth corresponding in size to the central cutout portion of the buffer pad. The cup shaped member provides for supporting the buffer pad on a backup plate and for connecting the mounting unit to a rotating driving spindle while maintaining a recessed clearance in the central portion of the buffer pad. The structure thus enables the rotating buffer pad to be moved during a buffing operation over a concave contoured surface such that the surface extends into the central cutout portion of the pad without touching the recessed surface of the cup shaped member or the end of the driving spindle connected thereto.

3,757,379
WINDSHIELD CLEANING APPARATUS
Robert D. Benson, 2521 Cedar St., White Bear, Minn.
Filed Mar. 13, 1972, Ser. No. 234,270
Int. Cl. B60s 1/48
U.S. Cl. 15—250.04 9 Claims



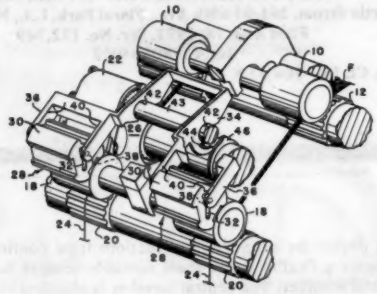
This new windshield cleaning apparatus is employed in an environment comprising an elongated wiper blade, and a wiper blade supporting assembly including an arched yoke structure connected to an oscillating wiper arm. The apparatus includes a windshield spraying washer, means for mounting the washer for oscillation with the blade supporting assembly, and flexible conduit means connecting the washer to a source of washing liquid. The windshiled spraying washer consists essentially of a resiliently flexible plastic tube which is arched comparably to the arching of the yoke structure of the blade supporting assembly. An inverted U-clip is attached to each end of the plastic tube, preferably as a unitary or integral appendage thereto. Each U-clip is removably clip-attached to the yoke structure to hold the arched tube in a substantially parallel laterally juxtaposed relationship to the yoke structure, for flexing therewith. Apertures in the tube direct wash fluid toward the windshield as oscillation and flexing of the entire assembly takes place.

3,757,380
PAINT TRAY
Benjamin L. Jackson, 1878 Charnelton St., Eugene, Oreg.
Filed Oct. 29, 1971, Ser. No. 193,775
Int. Cl. B44d 3/14
U.S. Cl. 15—257.05 4 Claims



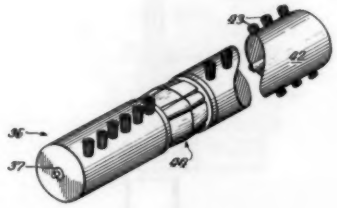
A paint tray for suspended attachment to a ladder in a manner locating the tray in a substantially level position. Handle structure is provided enabling one handed carrying of the tray to and from its ladder position in a horizontal position with little risk of spillage. Apertures within the handle structure of the tray permit carrying of one or more brushes or roller-type paint applicators on the paint tray.

3,757,381
DRAFTING SYSTEM
Grady H. Sanders, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Division of Ser. No. 170,189, Sept. 8, 1971. This application June 23, 1972, Ser. No. 265,713
Int. Cl. D01h 5/62
U.S. Cl. 15—256.51 6 Claims



An intermittently actuated scraper member for one of the front rolls of a drafting system to scrape lint from such roll to prevent the accumulation of lint, trash, etc., thereon, thereby eliminating the cause of lap ups on such roll.

3,757,382
BELT DRIVE ASSEMBLY
Joseph F. Brooks, and Harold W. Schaefer, both of Bloomington, Ill., assignors to National Union Electric Corporation, Stamford, Conn.
Division of Ser. No. 32,844, April 29, 1970, Pat. No. 3,682,010. This application Apr. 21, 1972, Ser. No. 246,169
Int. Cl. A47l 5/10
U.S. Cl. 15—389 8 Claims



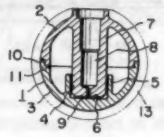
This disclosure deals with a belt drive assembly for use in suction cleaner. The assembly includes a drive pulley connected to be driven by a drive motor, a driven pulley connected to a rotatable brush roll, and a belt connecting the two pulleys. The outer surface of the driven pulley is divided into high friction portions and low friction portions, the belt exerting a tractive effort only on the high friction portions. The high and low friction portions are proportioned to obtain a driving relationship with the belt under normal load conditions on the brush roll but to slip under overload conditions.

3,757,383

HOLLOW SPHERE-LIKE STRUCTURES

Shuichiro Iiyoshi, 14-22, 5-chome, Higashi-Shinkoiwa, Katsushika-ku, Tokyo, Japan, assignor to Yugen Kaisha Tiyoshi Seisakusho, Tokyo-to, Japan

Filed Jan. 11, 1972, Ser. No. 217,051
Claims priority, application Japan, Jan. 14, 1971, 46/641; May 7, 1971, 46/36161; June 14, 1971, 46/49700
Int. Cl. A47b 91/00
U.S. Cl. 16—45 11 Claims



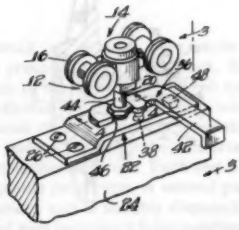
A first hollow semisphere having therein a cup-like part with a socket and a second hollow semisphere having therein a hollow journal cylinder for receiving an axle are joined together alo ·g their peripheral rims to form a hollow spherical structure, one end of the journal cylinder, which is integrally formed with the second semisphere, being fitted in the socket of the first semisphere, and a passageway is provided to communicate the hollow interior of the structure with the journal bore. This spherical structure may be used as it is or it may be enveloped in an outer layer to form a hollow spherical article such as a spherical wheel in a caster.

3,757,384

HANGER DEVICE

Robert E. Rusch, Woodbury, N.Y., assignor to Lawrence Brothers, Inc., Sterling, Ill.

Continuation of Ser. No. 883,937, Dec. 10, 1969, abandoned.
This application Feb. 3, 1972, Ser. No. 223,232
Int. Cl. A47h 15/06
U.S. Cl. 16—97 10 Claims



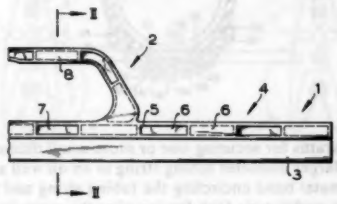
This invention relates generally to hanger devices for suspending door panels and the like, and more particularly to the combination with a hanger structure of a manually shiftable latch device to facilitate attachment and detachment of a top-hung door panel. The present application discloses a hanger device of the type which includes a carriage movable within an upper track and having means in the form of a depending pin for accommodating a complementary fitting attached to the upper margin of the door panel. The fitting attached to the upper edge of the panel includes an open-ended slot for receiving the lower extremity of the above-mentioned carriage pin. A pivotally supported latch member, when in one shifted position permits lateral insertion of the carriage pin within the open-ended slot, and when in another shifted position prevents lateral movement or dislodgement of the pin from the slot. This latch device includes a member projecting of the door which may be manually manipulated to move the latch member between the two above-mentioned positions.

3,757,385

CARRIER BAG HANDLES OF THERMOPLASTIC MATERIAL PREFERABLY MADE BY AN INJECTION MOULDING PROCESS

August Schwarzkopf, Lengerich, Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich of Westphalia, Germany

Filed May 18, 1971, Ser. No. 144,487
Claims priority, application Germany, May 27, 1970, P 20 25 888.2
Int. Cl. A47b 95/02
U.S. Cl. 16—110 4 Claims



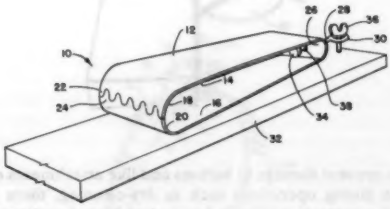
An injection-moulded carrier bag handle comprises a bar for securing to a carrier bag and an integral bowed hand grip defining a hand hole. The margin of the bar adjacent the hand grip is formed with a plurality of longitudinally aligned channels of U section which have their ends separated by transverse webs and their open mouths facing in alternately opposite directions towards the sides of the bar.

3,757,386

HOLDER FOR FISH CLEANING

Douglas W. Murray, 2028 Russell Ave., Baltimore, Md.

Filed Feb. 4, 1972, Ser. No. 223,679
Int. Cl. A22c 25/00
U.S. Cl. 17—70 4 Claims



A fish holder and positioner especially adapted for scaling operations, gutting, beheading and the like and for easy, thorough cleaning thereafter, through provision of opposed, toothed jaws integral with a unitary body composed of a handle-shaped, single compressed loop of flat spring material narrower than the jaws holding the jaws in normally closed position, with the looped end of the body having a special swivel attachment to a board or the like. In use, extra pressure can be applied to the jaws by squeezing the handle or by pressure applied to force the jaws or handle against the surface to which mounted; the handle is flared to provide access for easy separation to release the grip of the jaws and the teeth of the jaws are specially shaped to avoid severing.

3,757,387

APPARATUS FOR SECURING SMALL DIAMETER CONDUIT TO A LARGER DIAMETER TUBING STRING OR THE LIKE

Roy E. Bush, and Harold R. Beattie, both of New Orleans, La., assignors to Continental Oil Company, Ponca City, Okla.

Filed Dec. 17, 1971, Ser. No. 209,292
Int. Cl. B65d *63/08*
U.S. Cl. 24—81 CC **13 Claims**

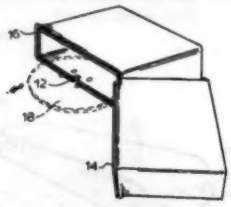
An apparatus for securing one or more small diameter conduits to a larger diameter tubing string in an oil well and comprising a metal band encircling the tubing string and the conduit with a wedge-type lock for securing the opposite ends of the band together thereby securing the conduit to the tubing string. One or more conduit receiving corrugations are formed in the band. In one form, the apparatus includes a rubber liner interposed between the band and the tubing string. In another form, dimples are formed in the band to engage the tubing string. In yet another form, the band is divided into two segments connected by a hinge. In still another form, two separate band segments are connected by two wedge-type locks.

3,757,388

GARMENT HANDLING

Andrew Blazej Marian Wolny, 44 Berryhedge Ln., Winshill, Burton-on-Trent, England

Filed Apr. 17, 1972, Ser. No. 244,733
Int. Cl. A44b *1/16*
U.S. Cl. 24—113 MP **5 Claims**



To prevent damage to buttons and like attachments on garments during operations such as dry-cleaning, there is disclosed a protective capsule having two hinged sections which may be fastened together to define a closed cavity around a button. There is also disclosed a releasable catch having a resilient snap action and being so configured as to reduce the possibility of accidental unfastening.

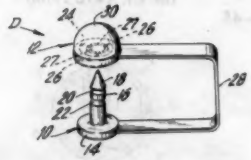
3,757,389

SHEET INTERCONNECTING DEVICE

Lawrence Wiland, 144-15 41st Ave., Flushing, N.Y.

Filed Sept. 25, 1972, Ser. No. 291,733
Int. Cl. A44b *9/00, 17/00*
U.S. Cl. 24—150 R **4 Claims**

A device for interconnecting sheets of paper, plastic film, cloth or the like. The device includes a first member which has a shaft with a tapered head at one end and a broad base at the other. The head is adapted to penetrate the sheets. The device further includes an annular second member with resilient inwardly extending gripping means, so that when the second member is slipped down the shaft, which has penetrated several sheets, and punched holes therethrough with the



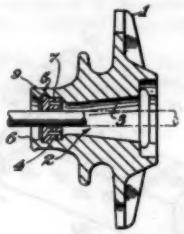
second member acting as an anvil and the first member acting as a punch, the gripping means engages the shaft, thereby coupling the two members while holding the sheets on the shaft pressed between the second member and the base of the first member. The ends of a yoke are permanently connected to the two members in order to maintain them as a unit, even when the members are not coupled.

3,757,390

ANCHORAGE ASSEMBLY FOR PRESTRESSING CABLES

Hugh Jeremy Willis Edwards, 20 Matthew Arnold Close, Cobham, Surrey, England

Filed Oct. 9, 1970, Ser. No. 79,495
Claims priority, application Great Britain, Oct. 16, 1969, 50,977/69
Int. Cl. F16g *11/04*
U.S. Cl. 24—126 **6 Claims**



An anchorage assembly for use in the prestressing of a cable which comprises an anchorage member having a bore adapted to receive and retain said cable, and an internal annular recess to co-act with an annular projection formed on a flexible insert provided to seal the annular space between said cable and the periphery of said bore. The flexible insert may be radially split or may be capable of being radially split.

3,757,391

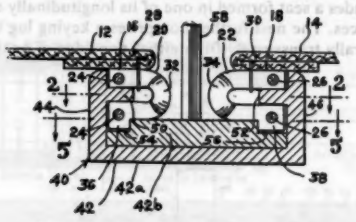
SLIDE FASTENER OF THE INVISIBLE TYPE

Eric Engel Cuckson, Penrith, and Arthur Llewelyn Jones, Glenbrook, both of New South Wales, Australia, assignors to Scovill Manufacturing Company, Waterbury, Conn.

Filed May 30, 1972, Ser. No. 257,946
Int. Cl. A44b *19/32, 19/04*
U.S. Cl. 24—205.1 R **8 Claims**

Slide fastener slider has groove means cooperating with flanges on individual slide fastener elements to hold the lines

of fastener elements away from the slider pull, obviating wear. Additionally, slider is held in place on fastener elements by its engagement in outward openings of U-shaped fastener elements avoiding contact of slider with fabric, also obviating wear.



3,757,392

JEWELRY CATCH

Boris Shteinshleifer, 40 Elizabeth St., New York, N.Y.

Filed Jan. 5, 1972, Ser. No. 215,580

Int. Cl. A44b *19/00*

U.S. Cl. 24—238 **2 Claims**

A jewelry catch of arcuate type made entirely from stampings from precious metal sheet stock. Relying upon the natural resiliency of the stock material, no spring is required to maintain the device in closed condition, whereby the entire device may consist of two relatively moveable parts. A first part includes a hollow arcuate tube, the free ends of which define an interstice therebetween. Each end is provided with a manually engageable projection. A second part is of solid arcuate configuration, and is slidably disposed within the first part. The second part includes a loop member secured to one surface thereof which projects outwardly of the main body portion thereof and is located in the above mentioned interstice, so that the second part may be moved within the first part by squeezing the loop member and one of the projecting tabs. Means is provided for wedging the second element with respect to the first element when the device is in closed condition to prevent loss of an engaged end of a string or chain.

3,757,393

TOY BUILDING ELEMENT CONSTRUCTIONS

Josef Bucheli, Busenhardstrasse 1066, Herrliberg, Switzerland

Filed May 13, 1971, Ser. No. 143,152

Claims priority, application Switzerland, May 15, 1970, 7359/70; Apr. 1, 1971, 4769/71

Int. Cl. A44b *21/00*

U.S. Cl. 24—252 CP **4 Claims**

A set of elements for constructing toy devices includes a basic clothes-pin type part or clamping element which comprises first and second arms which are pivoted together by a ball-shaped formation on one which extends into a socket formation on the other end which are held together in a pivoted formation. A V-shaped spring is formed inwardly between one of the common ends of the adjacent arms and the opposite ends form clamping jaws. The clamping element includes at least one opening at each arm to permit passage of a rod-shaped structural element therethrough, and in addition, the V-shaped spring part is formed with a round apex to facilitate engagement over a similar rod-shaped element at this location. The clamping jaws may be sprung open to engage over a

rod-shaped member or similar structural element. Advantageously the arms each includes an opening in a side or an end or top face or both so that they may be connected to a rod-shaped member on the side, ends or top. If desired, the ball-shaped projection on one of the arms can be lifted out of the socket-shaped part of the arm so that the arms are held spread apart by the V-shaped spring connecting their one ends. A very large number of interengagement possibilities may be obtained with the basic structures combined with one or more additional type toy building structures.

3,757,394

HOSE CLIPS

David Lilley Turner, Coventry, England, assignor to National Research Development Corporation, London, England

Filed Dec. 9, 1970, Ser. No. 96,478

Claims priority, application Great Britain, Dec. 10, 1969, 60,202/69. The portion of the term of this patent subsequent to Sept. 19, 1988, has been disclaimed.

Int. Cl. B65d *63/00*

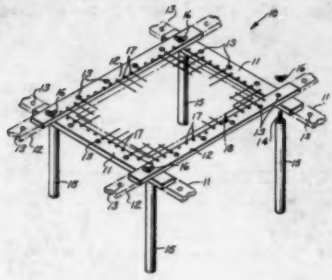
U.S. Cl. 24—281 **9 Claims**

A band clip includes a rotatably mounted screw which meshes wormwise with a threaded portion of the band. The screw is provided with a frusto-conical portion and the mounting for the screw presents an inclined surface which co-operates with the frusto-conical portion in such a way that, when the band is in an operative condition, co-action between the frusto-conical portion and the inclined surface biases the screw into engagement with the threaded portion of the band.

3,757,395
QUILTING AND BEADING FRAME

Juanita Edna Nepon, 21640-12 Mile Rd., St. Clair Shores, Mich.

Filed Mar. 1, 1972, Ser. No. 230,587
Int. Cl. D06c *3/08*
U.S. Cl. 28—15 1 Claim

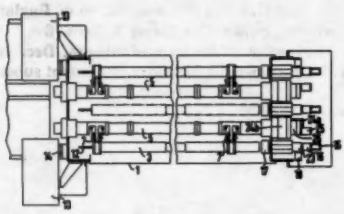


A frame device for quilting and lace beading. This device consists primarily of elongated strip members which are fastened to leg members, the strips being adjustable so as to form a square or rectangular frame for hand weaving and the like.

3,757,396
PRODUCTION APPARATUS FOR NUCLEAR REACTOR FUEL RODS

Werner Lohrbach, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Aug. 18, 1971, Ser. No. 172,659
Claims priority, application Germany, Aug. 19, 1970, P 20 41 089.3
Int. Cl. G21c *21/00*; B23p *25/00*
U.S. Cl. 29—33 T 5 Claims



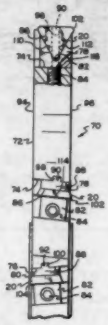
When machining, filling and cleansing casing tubes in the production of reactor fuel rods, the latter are disposed in a closed container and held therein in support tubes. Individual processing equipment is located at one face of the container while, at the other face thereof, a rotary shaft provided with grippers, drives for displacing the support tubes into the individual processing position and drives of clamping devices for the support tubes are provided. Consequently, only parts having a smooth surface and being relatively easy to decontaminate are present in the interior of the container.

3,757,397
CUTTING TOOLS

Harold W. Lindsay, 2480 N.W. Vaugh, Portland, Oreg.

Continuation-in-part of Ser. No. 885,199, Dec. 15, 1969, abandoned. This application Nov. 5, 1971, Ser. No. 196,117
Int. Cl. B26d *1/12*
U.S. Cl. 29—105 A 1 Claim

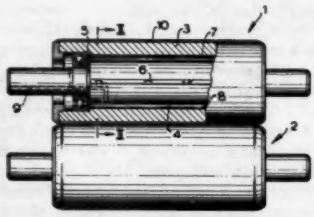
A cutting tool for use with replaceable carbide cutting inserts includes a head in which a recess is formed with a generally longitudinally extending portion disposed inwardly from the work-facing surface of the tool and a generally transversely extending portion disposed perpendicularly to the first named portion. A nest is removably disposed within the recess and includes a seat formed in one of its longitudinally extending surfaces. The nest further comprises a keying lug extending generally transversely from either one edge of or the central portion of the other of its longitudinally extending surfaces, which lug is received in the generally transversely extending portion of the recess. A replaceable carbide cutting insert is disposed within the seat such that at least one cutting edge extends outwardly of the cutter body. The seat serves accurately to locate the insert with respect to the nest and to hold the same therein. The lug serves accurately to locate the nest within the recess and to lock the nest to the cutter body.



3,757,398
SQUEEZING ROLL

Peter T. Urban, Meerbusch-Osterath, Germany, assignor to Edward Kusters Maschinenfabrik, Krefeld, Germany

Filed Apr. 22, 1971, Ser. No. 136,316
Claims priority, application Germany, Apr. 23, 1970, P 20 19 708.4
Int. Cl. B21b *13/02*
U.S. Cl. 29—116 AD 2 Claims



This disclosure relates to a device for passing webs through rolls to remove or squeeze liquid from the webs. The rolls are made with a covering of a thin layer of a synthetic material. For example, a roll having a 1 to 5 mm layer of polyurethane is useful for squeezing and dewatering textile webs.

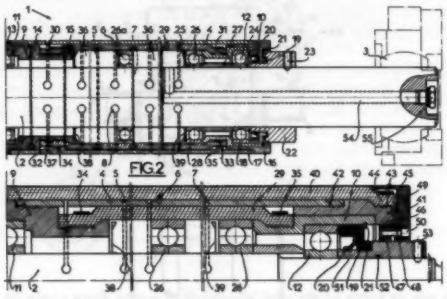
3,757,399
ROLLER FOR REMOVING FOLDS FROM MATERIAL IN FILM OR WEB FORM

Pierre J. Hanssen, Schweighouse, France, assignor to P. Hanssen & Cie S.A., Bas-Rhin, France

Filed Dec. 7, 1971, Ser. No. 205,525
Claims priority, application France, Dec. 16, 1970, 7045930
Int. Cl. B21b *13/02*
U.S. Cl. 29—116 R 8 Claims

A roller for removing folds from web material has an outer tube part mounted at each extremity by end bearings on a cen-

tral curved shaft. An oil-resistant elastic polymer sleeve spaced from but surrounding the shaft has an outer surface applied against the inner surface of the tube part. The inner surface of the sleeve is applied against the outer races of ball



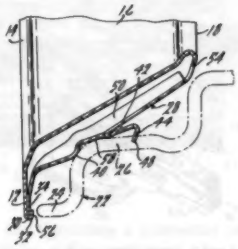
bearings disposed at intervals along the shaft between the end bearings. Opposite ends of the sleeve are clamped to the end bearing, and the space between the sleeve and shaft contains lubricating oil.

3,757,400

METHOD OF MANUFACTURE OF VEHICLE WHEEL TRIM

Hans R. Beisch, Essex County, Canada, assignor to Sargent Industries of Michigan, Inc., Ypsilanti, Mich.

Filed May 24, 1971, Ser. No. 146,082
Int. Cl. B21d *53/26*; B21k *1/28, 1/42*
U.S. Cl. 29—159 A **19 Claims**



This disclosure pertains to a novel method of manufacturing trim rings generally comprising the steps of providing a plurality of circular blanks, forming the outer portion of each said blank into an approximate trim ring configuration, forming wheel retention means on the inner portion of each said blank,forming each said inner portion into a shape complementary to the configuration of each said outer portion, and securing each said inner portion to one of said outer portions. Also disclosed is a novel trim ring structure incorporating improved locating and retention means.

3,757,401

METHOD OF MANUFACTURING VEHICLE WHEEL TRIM

Hans R. Beisch, Amherstburg, Ontario, Canada, and William C. Trute, Grosse Pointe Shores, Mich., assignors to Sargent Industries of Michigan, Inc., Ypsilanti, Mich.

Filed Mar. 31, 1972, Ser. No. 240,182
Int. Cl. B21d *53/26*; B21k *1/28*
U.S. Cl. 29—159 A **43 Claims**

This disclosure pertains to an improved method of manufacturing trim rings for automotive wheels from a single blank of material utilizing the normally-scrapped center portion thereof, such method comprising forming the outer peripheral portion of the blank into a shape approximating that of a trim

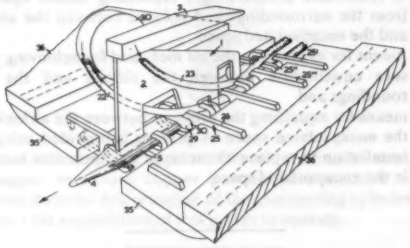
ring, forming the inner peripheral portion into retention means, separating the two portions and reassembling them into a trim ring assembly. Also disclosed in a novel trim ring.

3,757,402

MEANS FOR LINKING SEPARABLE FASTERNERS

James Haythornthwaite, and Joseph A. Fardeau, both of Joliette, Quebec, Canada, assignors to Scapa Dryers (Canada) Ltd., Joliette, Quebec, Canada

Filed July 22, 1971, Ser. No. 165,145
Claims priority, application Canada, July 27, 1970, 089214
Int. Cl. B25b *27/00*
U.S. Cl. 29—235 **3 Claims**



This invention relates to a novel means for connecting the ends of sheet material, particularly paper-making felts and fabrics, and includes a slider having means on its body which force one or more cables through throats and into slots formed in a plurality of separable fastener elements on the felt to maintain them in mutually cooperating relationship. The invention also relates to a method of connecting the fasteners when employing the slider as well as to a fastener element per se.

3,757,403

METHOD OF INSERTING NUCLEAR FUEL RODS IN GRID ASSEMBLY

Melvin L. Bleiberg, Pittsburgh, Pa., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Apr. 29, 1971, Ser. No. 138,781
Int. Cl. B23p *17/00*
U.S. Cl. 29—424 **11 Claims**

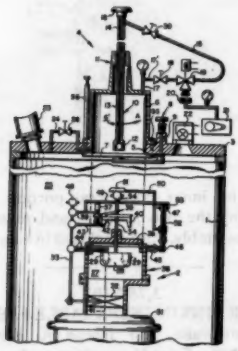
A method of inserting metal alloy clad nuclear fuel rods in a fuel rod spacer grid assembly without scratching the clad material comprising forming a hoarfrost-like coating on said rods before inserting them in the assembly.

3,757,404

PROCESS AND MEANS FOR REPLACEMENT OF COMPONENTS AND/OR OPERATING MEDIA IN ENCAPSULATED INSTALLATIONS

Jacky Bill, Birsfelden, Near Basle, Switzerland, assignor to Emil Haefely & cie AG, Basle, Switzerland

Filed Nov. 25, 1970, Ser. No. 92,825
Int. Cl. B23p *19/00, 19/04*
U.S. Cl. 29—200 D 9 Claims



An encapsulated installation comprises

a. an airlock for the uptake of components for the installation, which airlock is sealable from an encapsulated space of the installation, and from the surroundings,
b. a manipulating means extending into the air lock and operable from the surrounding,
c. a removable pressure-tight separating means operable from the surroundings and located between the airlock and the encapsulated space,
d. means for evacuating the air lock, and for achieving pressure equalisation between the airlock and the surroundings and
e. means for equalising the pressure between the airlock and the encapsulated space. A process is provided using the installation to replace elements of the apparatus installed in the encapsulated space.

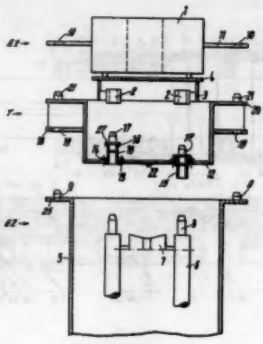
3,757,405

DEVICE FOR ADJUSTING THE POSITION OF A MOLD FOR CONTINUOUS CASTING IN A STAND

Johannes Kurth, Duisburg-Buchholz; Josef Glaser, Angermund, and Wilhelm Ferdrowitz, Duisburg-Rahm, all of Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Apr. 3, 1972, Ser. No. 240,658
Claims priority, application Germany, Apr. 6, 1971, P 21 17 760.6
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 P 5 Claims

Apparatus for adjusting the connections to be made between a mold for continuous casting and particular guide elements of a casting support stand, while mold and stand are disconnected. A plate having apertures corresponding in location to the position of the particular guide elements; laterally adjustable sleeve elements in the apertures, the sleeve elements adapted for securing in a particular position. An indexing tube in each sleeve element adapted for up and down sliding in the respective sleeve element, and having inner dimensions for receiving a guide element when the plate is particularly placed on the stand; and indexing pins placeable in parts into the indexing tubes and projecting therefrom, for simulating the relative position of the guide elements and permitting adjusting of connecting elements on the mold in particular relation to each other as established by the indexing pins as



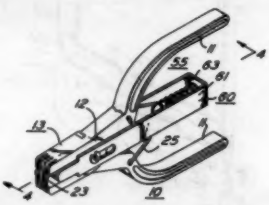
placed, for the connecting elements to assume position relation as needed for respectively receiving the guide elements when the mold is mounted to the stand.

3,757,406

TOOL FOR REMOVING AND INSERTING MODULES

William Bezar, Philadelphia, Pa., assignor to Techni-Tool, Inc., Philadelphia, Pa.

Filed July 24, 1972, Ser. No. 274,564
Int. Cl. H01r *43/00*; B25b *7/00, 7/02*
U.S. Cl. 29—203 H 6 Claims



A tool for removing and inserting modules comprising a pair of opposing jaws having a recess in which the module is clampingly held. The jaws each have a plurality of aligned teeth forming slots which communicate with the recess. The teeth are spaced so that they fit into spaces between the leads of the module. The tool includes an insertion assembly having a driving section and a component engaging section. The engaging section is disposed between the jaws and on the side of the module opposite the teeth. When the driving section is depressed, the engaging section forces the module against the teeth thereby opening the jaws and inserting the module into a circuit board or multiple contact block.

3,757,407

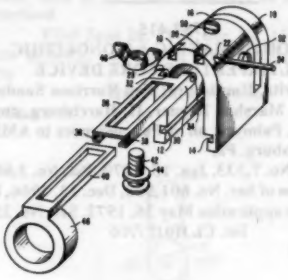
MAGAZINE HOLDING A MULTIPLE NUMBER OF SCREWS TO BE USED WTH AN ELECTRIC DRILL

Russell Paul Bomar, 16321 Londelius, Sepulveda, Calif.

Filed Mar. 2, 1972, Ser. No. 231,222
Int. Cl. B23q *7/10*; B23p *19/04*
U.S. Cl. 29—212 R 8 Claims

This invention relates to a cartridge or magazine holding a multiple number of screws to be used in connection with an

electric drill having a screw driver type blade so that the operator may insert a multiple number of screws without having to place each screw individually into place prior to use of the drill.

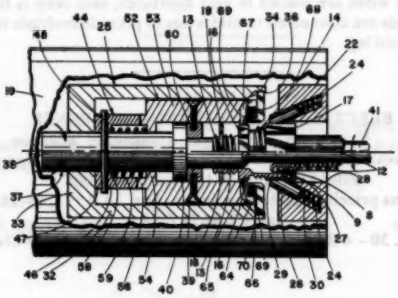


3,757,408

TOOL FOR ASSEMBLING A CONNECTOR ASSEMBLY

Sami Shemtov, Central Islip, N.Y., assignor to Electrical Fitting Corporation, East Farmingdale, N.Y.

Filed Mar. 28, 1972, Ser. No. 238,807
Int. Cl. B23p *19/06*
U.S. Cl. 29—237 **13 Claims**



A power tool for tightening a connector on an electrical conduit and includes a first stationary chuck having spring contracted first jaws and a driven second chuck having spring expanded second jaws axially spaced from the first jaws and spring biased toward the first jaws to expand them. The second chuck is positioned in a housing and the second jaws cooperate with a cam surface on the housing inside face so that the advance of the second chuck contracts the second jaws and the second chuck is connected by a torque limiting clutch to a drive shaft and is provided with an inside shoulder. By inserting the connector and conduit into the tool, any inner ferrule or sleeve is threaded onto the convolutions of the conduit inner surface so as to fully engage the conduit and the end of the connector pushes the second chuck rearwardly when the gland nut and body flats register with the first and second jaws respectively to close the jaws and to engage the clutch.

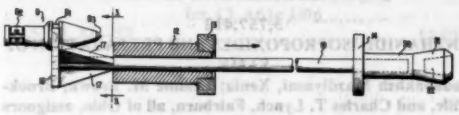
3,757,409

IMPACT TOOL

James C. Flanigan, P. O. Box 405, Haywood, W. Va.

Filed Nov. 30, 1971, Ser. No. 203,319
Int. Cl. B23p *19/04*
U.S. Cl. 29—254 **2 Claims**

An impact tool including a rod, a weight slidable on the rod, a stop on the rod and means at each end for engaging an element, whereby movement of the weight striking the stop will impart a pulling force of an element secured to one end of the rod and will impart a pushing force to a similar element engaged by the other end of the rod.

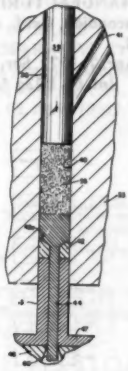


3,757,410

METHOD AND APPARATUS FOR EXTRUDING METAL POWDER TO PRODUCE A CONTINUOUS ROD

Edward S. Roberts, New York, N.Y., assignor to Treadwell Corporation, New York, N.Y.

Filed Jan. 27, 1971, Ser. No. 110,236
Int. Cl. B22f *3/24*
U.S. Cl. 29—420.5 **8 Claims**



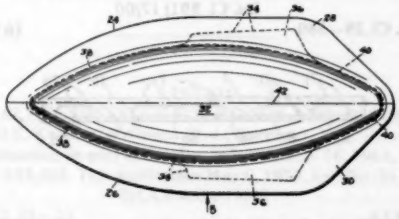
There is disclosed an apparatus for the continuous extrusion of copper rod from copper powder in a manner which prevents harmful deterioration of the compacting cylinder and requires the expenditure of less power to operate.

3,757,411

MANUFACTURE OF DEEP, NARROW, HOLLOW ARTICLES

Franklyn G. Umholtz, Box 16, Shutesbury, Mass.; Donald E. Scott, R.F.D. 3, Juggler Meadow Rd., Amherst, Mass., and James M. Douglas, Star Rt. No. 1, Montague, Mass.

Filed Nov. 4, 1971, Ser. No. 195,668
Int. Cl. B63b *3/06*
U.S. Cl. 29—416 **1 Claim**



Deep, narrow, hollow articles are made of metal by explosive forming a shallow vessel, trimming the sheet to the

desired shape at the edges thereof, dividing it, reorienting the divided members so that the flanges of the formed sheet which were opposite each other, are now in juxtaposition, and joining the contacting edges from end to end thereof.

3,757,412

LANTHANIDE ISOPROPOXIDES AND PREPARATION OF SAME

Khodabakhsh Mazdiyasni, Xenia; Leanne M. Brown, Brookville, and Charles T. Lynch, Fairborn, all of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 20, 1971, Ser. No. 191,127
Int. Cl. C07f 5/00
U.S. Cl. 260—429.2 **13 Claims**

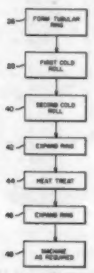
A process for preparing alkoxides of the lanthanide elements, such as lanthanum, cerium, praseodymium and neodymium, in high yields and at increased reaction rates, is provided by reacting a lanthanide element with isopropyl alcohol in the presence of a catalytic amount of mercuric iodide or a mixture of mercuric chloride and mercuric acetate.

3,757,413

METHOD OF MANUFACTURING SEALING RINGS

Darrel W. Craik, Escondido, Calif., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Apr. 7, 1972, Ser. No. 241,977
Int. Cl. B23p 13/04
U.S. Cl. 29—557 **5 Claims**



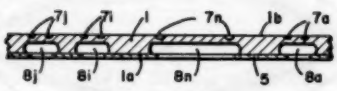
A method of manufacturing sealing rings or the like is disclosed in which the U-shaped cross-section is formed by two successive cold rolling steps. Thinning of the rings at the points of curvature is eliminated by forcing metal to cold flow from the flanges downward into the curved portion of the sealing ring.

3,757,414

METHOD FOR BATCH FABRICATING SEMICONDUCTOR DEVICES

Hans W. Keller, Excelsior, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 26, 1971, Ser. No. 128,420
Int. Cl. B01j 17/00
U.S. Cl. 29—580 **16 Claims**



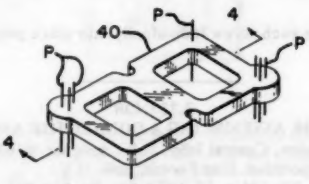
A method for batch fabricating semiconductor stress sensors having the semiconductor material diaphragm rigidly joined to a support flange made of the same semiconducting material. Two processed silicon slices, one to form diaphragms and the other to form support flanges, are rigidly joined. The joined slices are then partitioned to form individual stress sensors.

3,757,415

METHOD OF MAKING A MONOLITHIC MULTIAPERTURE CORE DEVICE

William Baird Fritz, Harrisburg; Neil Harrison Sanders, Carlisle; Emerson Marshall Reyner, II, Harrisburg, and Harry Alvin Fox, Jr., Palmyra, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 7,333, Jan. 15, 1970, Pat. No. 3,683,494, which is a division of Ser. No. 601,500, Dec. 13, 1966, Pat. No. 3,506,973. This application May 26, 1972, Ser. No. 257,210
Int. Cl. H01f 7/06
U.S. Cl. 29—604 **1 Claim**



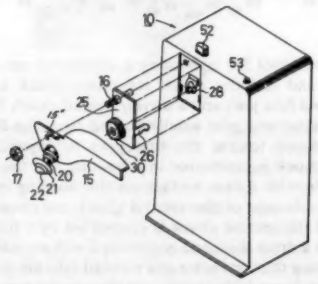
This disclosure relates a method of forming wired magnetic core devices wherein a plurality of apertures are formed in a leg of a magnetic core of insulating magnetic material, conductive wires are placed in said apertures, said core is fired, and leads are connected to said wires to provide multiple turns about said leg.

3,757,416

ELECTRICALLY POWERED CAN OPENER

Osamu Yamamoto, Nagoya, Japan, assignor to Kabushikikaisha Aichidenkikosakusho, Aichi-ken, Japan

Filed Sept. 29, 1971, Ser. No. 184,808
Claims priority, application Japan, Apr. 24, 1971, 46/26881
Int. Cl. B67b 7/38
U.S. Cl. 30—4 R **5 Claims**

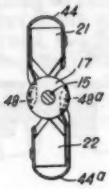


An electrically powered can opener including a base mounted detachably on the upright front member of the can opener housing, a cutter base carrying rotatably a rotary cutter and having a pivotal shaft, said pivotal shaft being extending through said base and supported by said upright front member for rotation and ready removal, said base and cutter base being unified by said pivotal shaft, a feed wheel holder fitted rotatably withing a loose aperture formed in said base, a driving shaft disposed in said housing for axially separable connection with said feed wheel holder through said front member and a latching member provided in said housing for precluding separation of said base from said housing and for permitting operation from the exterior of said housing.

3,757,417
CUTTER

Donald Stanley Savage, St. Albans, and Paul Edward Prosser, London, both of England, assignors to Aerpat A.G., Zug, Switzerland

Filed June 28, 1971, Ser. No. 157,506
Claims priority, application Great Britain, July 2, 1970, 32172/70
Int. Cl. B26b *17/04*
U.S. Cl. 30—179 1 Claim

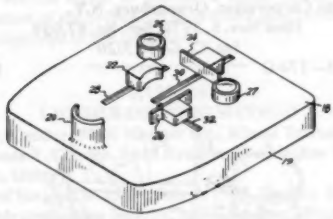


A cutter suitable for cutting, for example, swaged-on metal collars of lockbolts to facilitate removal of the lockbolts has two blades movable to bring their cutting edges together to cut a collar beteen them, and has resilient guides attached to the blades for guiding the blades to cut a collar or other workpiece symmetrically.

3,757,418
DIGITAL FOOT MEASURING INSTRUMENT

Ariel Stiebel, Bloomfield Hills, Mich., assignor to Radex Corporation, Detroit, Mich.

Filed Apr. 14, 1971, Ser. No. 133,825
Int. Cl. A43d *1/02*
U.S. Cl. 33—3 C 9 Claims

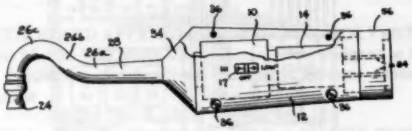


A device for measuring and exhibiting the shoe size corresponding to the length and width of a human foot which comprises a first slide adapted to be placed in alignment with the toe end of the foot and a second slide associated with the first slide and adapted to be placed in alignment with the ball of the foot. Each of the two slides has fixed to it a different scalar shoe size chart. A pair of apertures are positioned above the charts to exhibit a pair of shoe sizes as they are registered on the charts in the final moved position of the slides with the larger size indicating the appropriate shoe length size. A separate width determining slide is operatively associated and cooperable with both the aforesaid slides to provide the proper lateral movement of the two charts providing the appropriate shoe width size.

3,757,419
PORTABLE TOOTH CLEANER

Billy C. Hopkins, P.O. Box 817, Quincy, Calif.

Filed Nov. 8, 1971, Ser. No. 196,562
Int. Cl. A61c *3/06*
U.S. Cl. 32—59 12 Claims

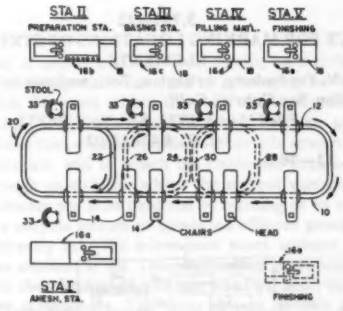


A hand-held, motor driven cleaning cup, wherein torque is delivered from the motor to the cup by a flexible torsion cable to allow the axis of rotation of the cup to be substantially at a right angle to the spin axis of the motor.

3,757,420
DENTAL OPERATIVE SYSTEM

Ralph H. Silverman, 7701 Arcadia, Morton Grove, Ill.

Filed Aug. 25, 1971, Ser. No. 174,602
Int. Cl. A61c *19/02*
U.S. Cl. 32—22 9 Claims



A dental operative system includes a plurality of mobile dental chairs for carrying patients along a path past dental treatment stations provided in spaced relation about the path. Dental personnel at each station provide a preplanned phase of dental treatment to a patient transported to the station. Controls are provided to direct the movement of the dental chairs along the path to subsequent stations upon completion of each phase of the treatment.

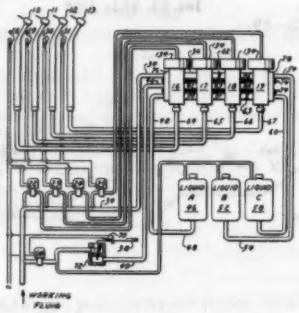
3,757,421
VALVE AND SYSTEM FOR DENTAL APPARATUS

Donald E. Kraft, 928 Winona Blvd., Rochester, N.Y.

Continuation-in-part of Ser. No. 367,294, May 14, 1964, Pat. No. 3,533,445. This application May 6, 1970, Ser. No. 35,005
Int. Cl. A61c *19/02*
U.S. Cl. 32—22 4 Claims

A valve of the spool type, and a fluid flow system controlled by one or more of the valves. The valve is intended primarily for use with dental equipment and includes a spool having intersecting radial and axial passages, with a conical throttle

member within the axial passage for controlling the rate of fluid flow into the axial passage from the radial passage. The



valve body includes by-passes through the bore in which the spool is seated so that several of the valves may be arranged in banks without the need for separate manifolding.

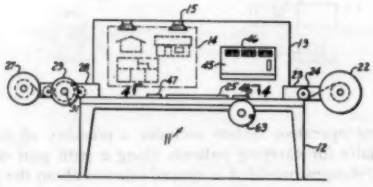
ERRATUM

For Class 33—3 see:
Patent No. 3,757,418

3,757,422
DEVICE FOR MARKING LOCATIONS OF STRUCTURAL ELEMENTS

Donald V. Frydenberg, Arlington, Tex., assignor to Clary Corporation, San Gabriel, Calif.

Filed May 3, 1971, Ser. No. 139,732
Int. Cl. B43l *13/02*
U.S. Cl. 33—76 R **3 Claims**

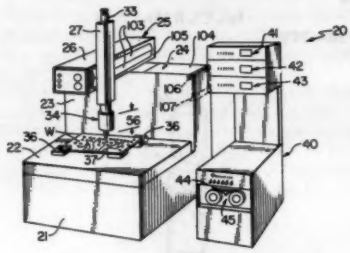


A device for marking wall panel stud locations on a pair of tapes to be later transferred to plate members forming part of a wall panel comprising a table having means for guiding the tapes endwise under a stationary templet, the latter having marker guide slots spaced along the path of the tapes at different distances depending upon the dimensions of different stud assemblies or other components of the wall panel. The tapes are advanced different amounts in accordance with different dimensions given on an architectural drawing. Combinations of lights are lit by closing appropriate switches to indicate the appropriate marker slots to be used for different stud assemblies, etc.. Movable templets are provided at opposite ends of the stationary templet and are adjustable predetermined amounts relative to the stationary templet to enable marking of door and window jambs, etc., in accordance with the dimensions of windows and doors to be installed.

3,757,423
MEASURING APPARATUS

Heinrich J. Wieg, Dayton, Ohio, assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 19, 1970, Ser. No. 81,992
Int. Cl. G01d *5/00*; G01b *3/28*
U.S. Cl. 33—174 R **10 Claims**

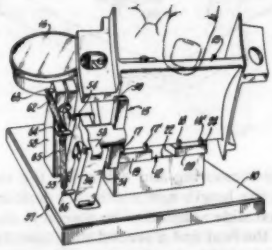


A machine for and method of providing dimensional measurements are provided and such machine has a carrier which is freely movable substantially in one plane and the carrier supports an elongated support for movement transverse such plane. The elongated support carries a gaging device at its lower end which enables rapid positioning of the carrier and support upon engagement thereof against an associated workpiece. The device has an outer housing and a shaft which is supported for precisely controlled telescoping movement within such housing and the shaft is provided with a gaging probe at its outer end. The shaft and gaging probe have a mass and combined length which is small compared to the mass and length of the elongated support enabling rapid retraction of the gaging probe against an associated stop using inexpensive retractable means comprising such device. The small mass of the shaft and probe also assure that the probe may be yieldingly urged by associated urging means against an associated workpiece with a precisely controlled force to thereby assure such workpiece will not be damaged.

3,757,424
CLASSIFICATION GAGE FOR TURBINE VANES

Edward C. Palmenberg, Nanuet, N.Y., assignor to Chromalloy American Corporation, Orangeburg, N.Y.

Filed Nov. 5, 1970, Ser. No. 87,059
Int. Cl. G01b *5/20*
U.S. Cl. 33—174 C **13 Claims**



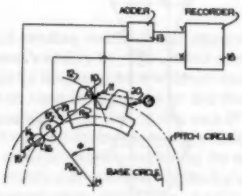
The invention contemplates a gage for vane-class measurement, in which the vane is oriented in space, and in which class is determined by a single angular measurement. The angular measurement is taken about a longitudinal axis which may be considered to be substantially the trailing-edge gage line, and said measurement is made between (a) a radial strobe through substantially the mid-point of the airfoil gage line (along the convex surface of the blade of the vane) and

(b) a radial strobe parallel to the orientation of one of the abutment edges of a buttress forming part of the vane. Various structural features enable simple and rapid one-handed manipulation of each successive vane into gaging position, so that the angular (class-indicating) measurement is fully repeatable for a given vane, and so that small and minor local anomalies in surface fidelity are substantially eliminated, i.e., they are not effective in degrading the reliability of the measurement.

3,757,425
APPARATUS FOR TESTING THE PROFILE AND THE PITCH OF INVOLUTE GEAR TEETH

Gratien Bouillon, 2571 Boul, Laurier, Quebec; Georges Tordion, 833 de Maure, Ste.-Foy, Quebec, and Gilles Tremblay, 810 Painchaud, Quebec, Quebec, all of Canada

Filed Dec. 1, 1970, Ser. No. 94,103
Int. Cl. G01b *7/28*
U.S. Cl. 33—179.5 D **13 Claims**

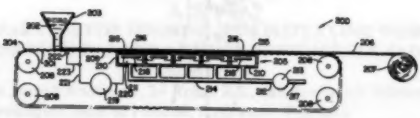


An apparatus for testing simultaneously the profile and the pitch of an involute straight or helical gear tooth including means for pivoting an electrical gauge head contacting the involute gear tooth about a pivot point common to the base circle of the gear and a line tangent to such base circle and intersecting the pitch circle of said gear on the surface of the gear tooth being measured, thus causing the electrical gauge head to generate a first signal proportional to the difference between the actual profile of the involute gear tooth under test and the segment of a circle traced about the pivot point. Means are provided for generating a second signal proportional to the difference between the theoretical profile of the involute gear tooth and the segment of the circle traced about the pivot point. The above-mentioned first signal is subtracted from the second signal to provide a signal representing the true deviation of the profile of the involute gear tooth from the theoretical profile of the gear tooth.

3,757,426
LIQUID REMOVING METHOD

Robert R. Candor, 5940 Munger Rd., Miami Township, Ohio, and James T. Candor, 5440 Cynthia, Washington Township, Dayton, Ohio

Division of Ser. No. 842,807, July 7, 1969, Pat. No. 3,667,130. This application Nov. 18, 1971, Ser. No. 200,255
Int. Cl. F26b *3/34*
U.S. Cl. 34—1 **23 Claims**

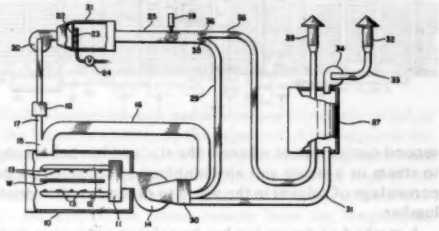


This disclosure relates to a laundry apparatus, paper making apparatus or the like wherein the moisture or liquid in the wet laundry, food materials, paper slurry or the like, disposed therein is removed by an electrostatic means that provides a differential in the potential of the moisutre in the laundry, food materials, paper slurry or the like and an electrode means for the moisture to tend to cause the moisture to leave the laundry, food materials, paper slurry or the like and move toward the electrode means. Such electrode means can comprise a suction nozzle which tends to draw a large volume of air through the laundry, food materials, paper slurry or the like adjacent thereto to also tend to direct the moisture from the laundry, food materials, paper slurry or the like toward the electrode means.

3,757,427
METHOD AND APPARATUS FOR DRYING SOLVENTS

Dwight Martin Wilkinson, Rocky River, Ohio, assignor to B & K Machinery International Limited, Malton, Ontario, Canada

Filed Oct. 6, 1971, Ser. No. 187,101
Claims priority, application Canada, Oct. 30, 1970, 96469
Int. Cl. F26b *3/00*
U.S. Cl. 34—32 **8 Claims**



A method of drying a solvent type coating on a surface, by heating the coating within an oven by a hot gaseous medium and in which the gases within the oven are continuously exhausted, and the effluent gases leaving the oven are then separated into two streams, namely, a recycle stream and an oxidation stream, and in which the oxidation stream is then passed through an oxidizer where the solvent vapours in the oxidation stream are then oxidized by burning or by catalytic action. The recycle stream of untreated effluent gases is then recycled directly into the oven once more without passing through the oxidizer at all. The combustion gases leaving the oxidizer are then separated into two streams, and one stream is vented to atmosphere. The other stream, namely a return stream, is then passed into the oven again together with the recycle stream of unburnt effluent gases. Sufficient fresh air is drawn into the system, preferably through a heat exchanger heated by the waste combustion gases, and such additional make-up air is then passed directly into the oven, where it mixes with the incoming return stream of combustion gases, and the incoming recycle stream of unburnt effluent gases to maintain the desired process temperature. The specification also discloses apparatus suitable for the practising of the method.

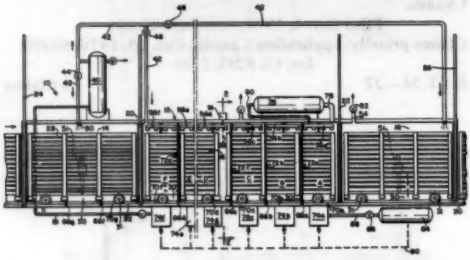
3,757,428
METHOD AND APPARATUS FOR DRYING LUMBER

Donald A. Runciman, 15221-15th St., Seattle, Wash.

Filed June 28, 1972, Ser. No. 267,132
Int. Cl. F26b *3/04*
U.S. Cl. 34—9.5 **23 Claims**

A method and apparatus for drying stacked lumber by solvent extraction, said apparatus including an elongate chamber through which stacked batches of lumber to be dried are moved. The elongate chamber includes a first compartment in which a stacked batch of lumber is steamed. A second longitudinally adjacent compartment wherein a liquid mixture of a solvent and water near its boiling point wets the stacked lumber in the presence of a vapor mixture of steam and sol-

vent such that the solvent in the liquid phase replaces water within the lumber. As the stacked lumber is moved through this second compartment both the liquid and vapor phases in contact with the lumber have progressively greater solvent contents. The wetting liquid flows progressively through a series of weirs counter the direction of lumber movement, while the vapor moves between the stacked lumber in the direction opposite liquid flow and in this manner, the solvent drying the lumber is itself distilled within the chamber. A condenser adjacent the exit end of the second compartment withdraws vapor having a high solvent content from the compartment and returns solvent condensed therefrom to the dry wood end of the compartment where it is again used to wet the lumber. A third compartment is provided longitudinally adjacent the



second compartment wherein the stacked lumber is subjected to steam or a steam and air combination to remove a desired percentage of solvent in the wood to produde substantially dry lumber.

A method of drying lumber by solvent extraction including the steps of steam conditioning wood for drying; wetting the lumber to be dried with a substantially closed chamber with a water-solvent liquid mixture maintained at or near its boiling point; increasing the solvent content of the liquid mixture such that solvent replaces substantially all of the moisture in said lumber; simultaneously distilling the solvent within the substantially close chamber; and raising the temperature of the lumber to drive off the solvent therein to produce substantially dry lumber.

3,757,429

WIG DRYER

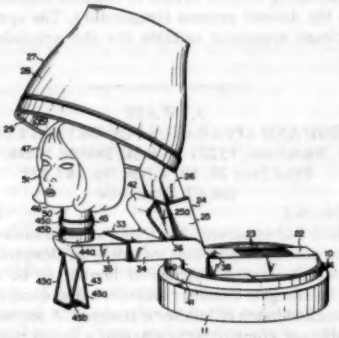
Shouji Sumino, Mizuho-ku, Nagoya-shi, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Mizuho-ku, Nagoya-shi, Japan

Filed Dec. 22, 1971, Ser. No. 210,735

Claims priority, application Japan, Apr. 10, 1971, 46/27425; Apr. 10, 1971, 46/27426; Apr. 10, 1971, 46/27427; Apr. 10, 1971, 46/27428

Int. Cl. A45d *20/24*

U.S. Cl. 34—103 **10 Claims**



A wig dryer comprising a blower-heater unit, a wig supporting block having an air chamber therein and apertures through which the air chamber communicates with the outside of the block, a telescopic flue assembly for connecting the air chamber with the blower-heater unit, a hood having the inner shell perforated with apertures and adapted to cover the wig supporting block, another telescopic flue assembly for connecting the air chamber provided in the hood with the blow-heater unit, wherein the flue assemblies are made alternatively to communicate with the blow-heater unit thereby to dry a wet wig put on the block and set the hair of a wig.

3,757,430

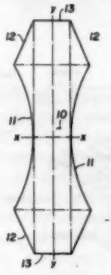
FLEXIBLE MODULE

Robert MacBride, 41 Glen Byron Ave., Nyack, N.Y.

Filed Apr. 18, 1972, Ser. No. 245,128

Int. Cl. G09b *25/04*

U.S. Cl. 35—16 **5 Claims**



A flexible module for the construction of three dimensional hollow objects, consisting of a flat sheet of semi-rigid elastic material, the edges of which may be joined to the edges of forms of similar shape, by means of coupling pins or integral clips. The form of each module is symetrical about both horizontal and vertical axes, being characterized along the longitudinal axis by a middle section and an end section. The middle section is formed of sides in the form of concave arcs, with the end sections consisting of straight converging sides which approach each other as the sides approach the end of the module. Modules are joined together by joining the edge of one straight side to the similar edge of another unit.

3,757,431

CRASH DUMMY CHEST STRUCTURE

Roger P. Daniel, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 6, 1972, Ser. No. 312,769

Int. Cl. G09b *23/32*

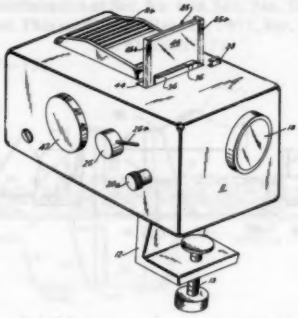
U.S. Cl. 35—17 **9 Claims**

An impact damping means is provided for the chest structure of an anthropomorphic dummy. The load-deflection of the chest structure is hydraulically controlled through a lever arm arrangement reacting on a viscous damping means.

3,757,432
CONTROLLED READING DEVICE

Stanford E. Taylor, Hawk Dr., Lloyd Harbor, N.Y.

Filed June 1, 1972, Ser. No. 258,612
Int. Cl. G09b *17/04*
U.S. Cl. 35—35 B 16 Claims



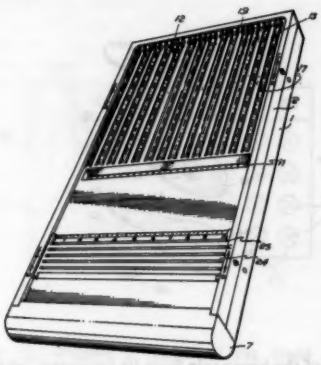
A controlled reading method and apparatus useful in improving a person's ability to view and to comprehend reading material in line by line sequence wherein each line is unveiled and occluded to view in segments in the direction of reading from the beginning of the line to the end of the line with the beginning and central segments being scanned and occluded at controlled rates of speed which may be related to the person's reading ability and with the beginning segment being unveiled at a relatively more rapid rate and the terminal segment being occluded at a relatively more rapid rate whereby the transition from the end of each line to the beginning of the succeeding line is more rapid and a relatively greater length of reading material is more rapidly exposed at the beginning of the next line to facilitate recognition. The unveiling scanning and occluding of the segments of the line may be accomplished by means of a movable mask or shutter with an aperture shiftable with respect to each line so as to scan the line from beginning to end with the said aperture being in the form of an elongated or helical slot arranged at an angle with respect to the length axis of the line to be scanned with the initial portion of the slot being disposed in a downward direction and the terminal portion in an upward direction with respect to the axis of the line and with the leading and trailing edges of the central segment of the slot and the trailing edge of the initial segment of the slot being disposed at relatively greater angles to said length axis of the line than the remaining edges of the slot and with the trailing edge of the terminal segment and the leading edge of the initial segment of the slot being disposed at a relatively lesser angle to the length axis of the line. The lines of reading material may be formed on a film strip mounted on a stick slide having ratchet-like notches formed along the sides of the slide and advanced line by line by means of mechanism actuated by operation of the shutter. Various controls are provided whereby the reading range can be varied, the film stopped at any line, moved backwards to repeat a line, or advanced manually, or lines of material can be projected tachistoscopically.

3,757,433
APPARATUS FOR FORMING AND DISPLAYING WORDS OR NUMERALS OR A SERIES OF NUMERALS AND SYMBOLS

John Joseph Robinson, 24 Ardee Rd., and Frederick Hibbert, 9 Broadgate, both of Preston, Lancaster, England

Filed Oct. 18, 1971, Ser. No. 189,911
Claims priority, application Great Britain, Oct. 23, 1970, 50,401/70
Int. Cl. G09b *1/28*
U.S. Cl. 35—75 7 Claims

Apparatus for displaying letters, numerals and symbols for teaching educational subjects comprising a frame formed in two substantially identical sections mounted one above the other and formed with a plurality of parallel longitudinal slots in one half of each section, identical columns of letters, numerals and symbols being inscribed on the lands between the slots, and slider strips mounted to slide between the sections in the slots movement of each strip bringing the letters, numeral



or symbol selected on one section into a transverse window slot in the frame to enable, by the selection of the required letters, numerals or symbols, words, sentences or mathematical expressions to be displayed in the window slot, the ends of the strips remote from the selected letter, numeral or symbol sliding into the end of the frame remote from the longitudinal slots.

3,757,434
GOLF SHOE CLEAT AND SUPPORT THEREFOR

Edward H. Granger, Jr., Abington, Mass., assignor to F. C. Phillips, Inc., Stoughton, Mass.

Division of Ser. No. 56,467, July 20, 1970, Pat. No. 3,685,175.
This application Aug. 9, 1971, Ser. No. 170,361
Int. Cl. A43b
U.S. Cl. 36—2.5 AH 8 Claims

A golf shoe having a plurality of extending cleats embedded in its bottom and fixed to an integral plate having V-shaped grooves, the apex of each of the grooves defining a hinge. The plate profile corresponds substantially to the shoe bottom profile. Each of the cleats includes a circular head and an axially extending socket having a tapered core concentric therewith and crimped therein, the tip of the core projecting from the socket.

3,757,435
BIASED TENSIONED INSOLE MEMBER FOR BOOTS OR SHOES

Boris Schwartz, 400 Park Ave., Paterson, N.J.

Filed Mar. 21, 1972, Ser. No. 236,772
Int. Cl. A43b *13/12*
U.S. Cl. 36—30 R 8 Claims

This invention pertains to a rubber insole member which preferably has its mid-length longitudinally slit to provide a

grouping of side-by-side tension members. This tensioning insole member is attached in a stretched condition at or near the toe and heel of the outer sole and between this outer sole and the covering inner sole is retained so as to be in a tunnel-like manner. With this shoe or boot mounted on the foot of the wearer in the usual manner, as the wearer walks or runs the

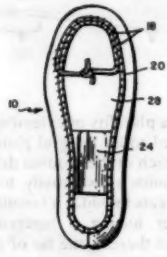
bending of the lower sole from its tensioned "at rest" condition during the striding motion causes the tensioned strips of the rubber member to be further stretched to store energy which is released as the stride is completed and the sole of the shoe or boot returns to its substantially flat "at rest" or normal condition.

3,757,436

APPARATUS PROVIDED WITH LASTING TABS AND METHOD OF LASTING

Julius G. Winkler, Lexington, and Pasquale Corazzini, Watertown, both of Mass., assignors to Compo Industries, Inc., Waltham, Mass.

Filed Dec. 4, 1972, Ser. No. 311,771
Int. Cl. A43b *23/00*; A43d *21/00*
U.S. Cl. 36—46.5 **13 Claims**



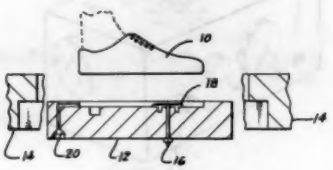
A method of string lasting a shoe upper and providing an upper with a lasting string at its lower edge by means of which the lower edge is adapted to be drawn inwardly against the bottom of a last or form preparatory to injection molding of an outsole thereto and with lasting extensions at the lower edge, one at each side in the region of the shank for drawing the upper at the shank inwardly across the bottom of the last or form to conform the upper to the last or form at the shank.

3,757,437

SHOE AND METHOD OF MAKING SAME

Bruce M. Cameron, 5220 Travis, Houston, Tex.

Filed July 19, 1971, Ser. No. 163,671
Int. Cl. A43b *23/28*; A43d *9/00*
U.S. Cl. 36—59 R **15 Claims**



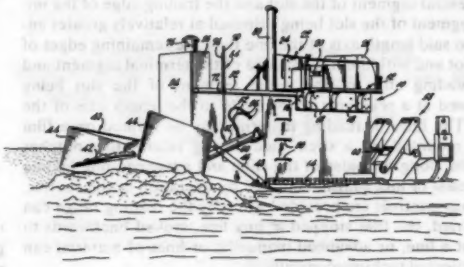
A shoe having an upper and a sole molded thereon with a disc molded in and rotatable in said sole and having a ground-engaging pad secured thereto and the method of coating the disc with a releasing agent, supporting the disc in the sole mold together with the upper so that the injection of sole material forms a sole bonded to the upper with the disc molded therein but because of the releasing agent is rotatable. This abstract is not to be construed in any way to define or limit the invention set forth below.

3,757,438

BULLDOZER FOR UNDERWATER OPERATIONS

Mark Yoshio Watase, 1605 Kanalui St., Honolulu, Hawaii

Filed Dec. 9, 1970, Ser. No. 96,408
Int. Cl. E02f *5/00*
U.S. Cl. 37—54 **1 Claim**

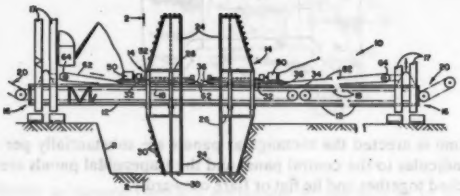


A bulldozer adapted to carry out operations on ground which is submerged beneath water. The existing frame and belly guard of a conventional bulldozer are interconnected so as to form a watertight enclosure in which the engine and additional components are housed. At the upper part of the enclosure is a support for the operator and the various controls are accessible to the operator at the upper part of the enclosure. All liquid-holding tanks are located at an elevation sufficiently high to prevent flooding thereof, and the intake and exhaust of the engine also extend to an elevation high enough to maintain them out of water in which the entire bulldozer is situated during underwater operations.

3,757,439
METHOD OF EXCAVATING TRENCHES OF CONSIDERABLE WIDTH

David Khaitovitch, 114-1 Rehove Avraham Stern, Jerusalem, Israel

Continuation-in-part of Ser. No. 28,184, April 13, 1970, which is a continuation of Ser. No. 698,741, Jan. 18, 1968, abandoned. This application Dec. 22, 1971, Ser. No. 211,007
Int. Cl. E02f 3/24
U.S. Cl. 37—195 4 Claims

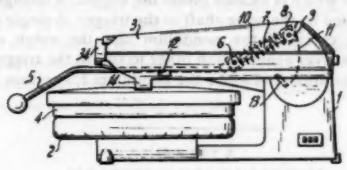


Earth excavating apparatus and method, the apparatus having an elongate horizontally disposed supporting arrangement including a girder, said arrangement having means for effecting horizontal movement of the entire arrangement and vertical movement of said girder. Two or more excavating units are slidably mounted on the said girder for longitudinal movement therealong, whereby upon horizontal movement of said support arrangement and longitudinal movement of said excavating units relative to said girder, a trench or excavation of considerable width may be effected. A support member further includes conveying apparatus so that the excavating material may be removed and transported to the ends of said supporting arrangement.

3,757,440
IRONING PRESS

Marcel Fresard, Petit-Lancy, and Antonio Jimenez, Meyrin-Geneva, both of Switzerland, assignors to Mefina S. A., Fribourg, Switzerland

Filed Dec. 8, 1972, Ser. No. 313,440
Claims priority, application Switzerland, Feb. 24, 1972, 2630/72
Int. Cl. D06f 71/00
U.S. Cl. 38—17 6 Claims

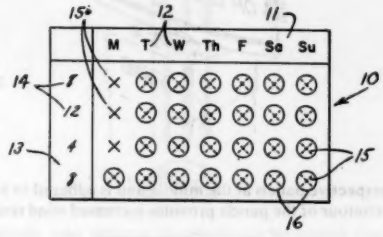


An ironing press of the type wherein the stationary ironing board is heated by a heating plate lowered onto it by an arm pivotally secured to the press body. To allow freedom of movement in all directions of the heating plate with reference to the ironing board, there is associated with a central multi-directional pivotal connection between the heating plate and the carrier arm, an elastic connection constituted by coaxially bored bosses raised on the plate, the bores in said bosses being engaged by pivots elastically fitted on the carrier arm at points lying with the pivotal connection on a line parallel with the pivotal axis between the heating plate and the carrier arm.

3,757,441
MEANS FOR RECORDING MEDICINAL DOSAGES

Michel M. Baustin, 5469 Kings Highway, Brooklyn, N.Y.

Division of Ser. No. 63,179, Aug. 12, 1970, Pat. No. 3,675,620. This application Nov. 17, 1971, Ser. No. 199,428
Int. Cl. A44c 3/00
U.S. Cl. 40—2 R 1 Claim

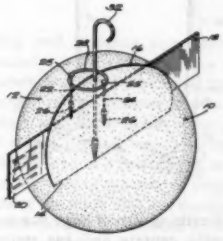


A means for keeping a record of the times at which medicinal dosages are taken in which indicia to record such dosage are arranged in columns and rows opposite the times at which the dosages are to be taken.

3,757,442
DISPLAY HOLDER

Walter F. Cook, P.O. Box 125, Ft. Atkinson, Wis.

Filed Aug. 3, 1972, Ser. No. 277,728
Int. Cl. G09f 7/22
U.S. Cl. 40—128 2 Claims



A holder for a display such as advertising, price information or tinsel for a Christmas tree includes a sponge rubber body which can be spherical and which has a slit for receiving the display. The display is firmly secured in the slit by clamping means which can include pins in the sponge rubber body on each side of the slit and a ring which is slipped over the pins when the side walls of the slit are compressed to retain the walls in compression on the display.

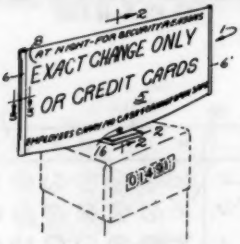
3,757,443
SIGN

Harmon B. Miller, III, 3821 N. Stratford Rd., N.E., Atlanta, Ga.; Bill Fernander, 3288 Balmoral Dr., Chamblee, Ga., and Larry Hanson, Box 70, Fort Valley, Ga.

Filed Apr. 3, 1972, Ser. No. 240,515
Int. Cl. G09f 01/10, 07/12
U.S. Cl. 40—125 H 13 Claims

A sign comprising two facing rectangular boards which abut

at their tops and ends but are bowed apart at the midpoint of their bottoms. A short block is connected to the bottoms of



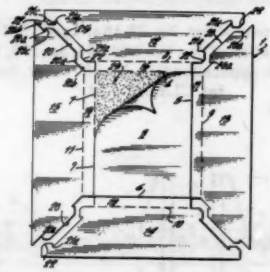
the respective panels at the middle and is adhered to a surface. The contour of the panels provides increased wind resistance.

3,757,444
TRANSFER LIGHT SIGN
Kenneth L. Magoto, Rt. 1, Box 11, Versailles, Ohio
Filed Jan. 5, 1972, Ser. No. 215,477
Int. Cl. G09f *13/14*
U.S. Cl. 40—130 B **1 Claim**

An improved advertising sign of large size such as is used for restaurants, shopping centers and gas stations, and which usually is located high up so to be visible far down a highway; the sign having its illuminating lamps in its base or near the ground where they can be more easily serviced or replaced in case of burning out, the light rays from the lamps being carried upwardly to the sign through reflection on light refractive surfaces.

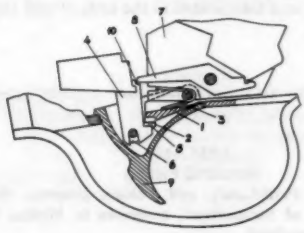
3,757,445
COLLAPSIBLE PICTURE FRAME
Daisy D. Stilwell, 127 E. 64th St., New York, N.Y.
Filed July 21, 1971, Ser. No. 164,628
Int. Cl. G09f *1/12*
U.S. Cl. 40—154 **6 Claims**

A collapsible picture frame has a central panel for displaying a picture and is defined by four fold lines, a rectangular panel integrally connected with the central panel, one side of each rectangular panel being provided by one of said fold lines, and four trapezoidal panels, each integrally connected through another fold line to a rectangular panel. Cut-out portions at each corner of the picture frame provide mating notched tabs and notched openings along adjacent nonparallel sides of the trapezoidal panels, whereby when the picture



frame is erected the rectangular panels are substantially perpendicular to the central panel and the trapezoidal panels are locked together and lie flat or flare outwardly.

3,757,446
FIRING MECHANISM FOR HUNTING FIRE ARM WITH TWO BARRELS
Erkki Vesamaa, Jyvaskyla, Finland, assignor to Valment Oy, Helsinki, Finland
Filed Mar. 15, 1971, Ser. No. 124,248
Int. Cl. F41c *19/00*
U.S. Cl. 42—42 R **1 Claim**

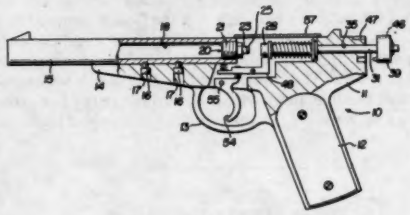


A firing mechanism for a hunting gun having two barrels includes a change-over device connected with the trigger, so that the user can select which of the two barrels shall be fired first. A laterally movable pendulum prevents double firing. It is connected with a change-over stud which can move it laterally and which is located inside the trigger. A change-over lever is carried by the same shaft as the trigger. A single spring presses the catch of the pendulum and the catch of the change-over lever against each other to return the trigger into its starting position and move the pendulum for release of the other sear.

3,757,447
MUZZLE LOADING FIREARM
Robert W. Rowe, 840 Palm Tree Ave., Harbor Heights, Fla.
Filed Jan. 6, 1972, Ser. No. 215,769
Int. Cl. F41c *3/00*, *7/00*
U.S. Cl. 42—51 **2 Claims**

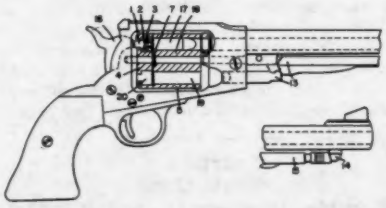
A muzzle loading firearm having a frame upon which is mounted a centrally bored barrel with a centrally bored plug threadedly fitted into and plugging the breech or rear end of the barrel, with the plug having a rearwardly extending nipple portion over which a cup-shaped percussion cap is placed. An axially movable spring loaded bolt, aligned with the axes of the barrel and plug bores and nipple, has an anvil end arranged to impact against the cap upon actuation of a trigger mechanism,

for firing the charge loaded within the barrel through its muzzle. The bolt is locked against axial movement by a safety mechanism, including a rotatable knob, mounted upon the rear end of the bolt, with the knob having a forwardly extending spacer pin arranged to selectively abut a portion on the



frame to prevent forward movement of the bolt or to align with and fit into a frame recess of sufficient depth to receive the pin when the bolt moves forwardly against the cap. An openable flash shield normally covers the plug nipple and bolt anvil portions.

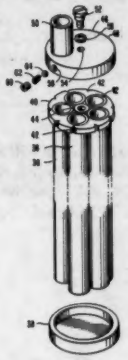
3,757,448
VICTOR REVOLVER CYLINDER ADAPTER
Victor Petrucci, 894 Marsh St., San Luis Obispo, Calif.
Filed Dec. 3, 1971, Ser. No. 176,184
Int. Cl. F41c *1/00*
U.S. Cl. 42—59 **1 Claim**



A cap and ball revolver can become choresome when it is repeatedly loaded and shot in the original fashion. To accomplish ease of handling and use, a replacement cylinder is installed which allows the cap and ball revolver to fire the standard center-firing ammunition. The replacement cylinder is divided into two pieces — the back plate which houses the firing pin, and the main cylinder section.

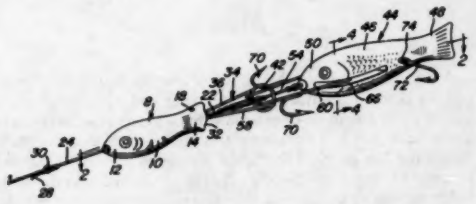
3,757,449
DEVICE FOR LOADING SHELLS
Willard R. Schindler, 10815 Amestoy Ave., Granada Hills, Calif.
Filed Feb. 22, 1972, Ser. No. 227,986
Int. Cl. F42b *39/06*
U.S. Cl. 42—87 **3 Claims**

A loading device having a series of elongated tubes each of which is adapted to hold a number of shells or cartridges. The tubes are disposed in a circular arrangement and a rotatable end cap having a hole therein is rotated to align the hole with



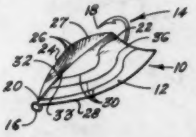
each separate tube wherein the shells can be loaded into the tube or discharged into the firearm by means of gravity.

3,757,450
FISH LURE
Antero Martinez, and Estrella Martinez, both of 3430 E. 4th Ave., Hialeah, Fla.
Filed Apr. 10, 1972, Ser. No. 242,375
Int. Cl. A01k *85/00*
U.S. Cl. 43—35 **3 Claims**



A fish impaling and trapping lure embodying interconnected plugs; namely, a forward auxiliary plug providing a small bait or minnow and a complemental rearward main plug representing a larger bait or minnow in pursuit of the smaller minnow. Both plugs are cooperatively linked by a pull responsive shaft or rod means carried in part by the small plug with its rear end portion joined to a second rod or shaft whose rear end is fastened to the nose of the second larger plug. The body and head portions of the main plug are equipped with trapping and impaling hooks carried by resilient spring-connected fingers having free forward ends releasably connected to a keeper ring fixed on the rearward diverging ends of a V-shaped yoke fixed to the rear end of the small minnow.

3,757,451
FISH LURE
Herbert Cottle, 2902 Sixth Ave. S.W., Huntsville, Ala.
Filed Sept. 16, 1971, Ser. No. 181,178
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.1 **8 Claims**



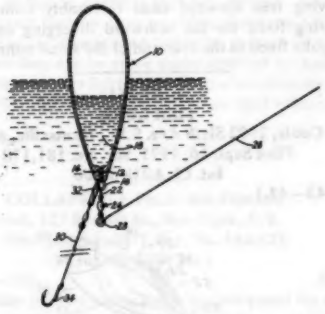
A fishing lure consisting of a fish hook and a triangular lure body covering the shank of the hook and in which one side of

the top surface of the lure body is contoured to sweep upward near the rear of the lure body whereas the opposite side is not so contoured. This assymetry causes the lure to be flipped over if the top side of the lure should become face downward in the water and the lure pulled through the water. This causes the lure to be generally maintained with the hook portion upward and thus less likely to be caught in debris.

3,757,452
FISHING DEVICE
George S. Parker, P.O. Box 38, Kailua, Kona, Hawaii
Filed Mar. 29, 1971, Ser. No. 128,895
Int. Cl. A01k *85/08*
U.S. Cl. 43—42.25 11 Claims

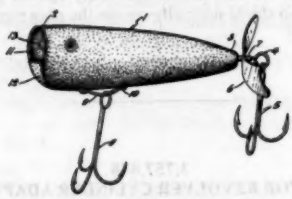
A tassle made from thousands of minute but strong fibers has the tassle head attached to a leader and when used at the end of a fish line in co-operation with or even in the absence of a lure head, live bait or spinner this tassle serves to attract fish. When the fish touches the tassle the rough texture of the fish exterior becomes sufficiently adhered to the fibers to allow the fisherman using this device only and without hooks to pull the fish in.

3,757,453
FISHING LINE FLOAT
John J. Therres, 7993 Atlantic Ave., White City, Oreg.
Filed Dec. 7, 1971, Ser. No. 205,691
Int. Cl. A01k *91/02*
U.S. Cl. 43—43.14 2 Claims



A fishing line float is provided which, when properly combined with a line and leader can be cast to unprecedented distances. The float comprises a hollow, normally sealed shell of raindrop or cigar-shaped design. It is loaded with a determined quantity of water, insufficient to fill the shell but sufficient to fill a substantial portion of it. The float shell is designed to have the leader and line connected to its pointed end. The float shell is desirably composed of a transparent, deformable, infrangible, but elastic plastic material which has the advantage that it does not shatter when the float is caused accidentally to hit a tree, boulder or other hard object, and which has the further advantage that the float is adapted to be used as a squeeze bottle under appropriate conditions, for sucking a determined quantity of water into the float shell for loading purposes. The float has the further desirable characteristic that the line and leader trail during casting but extend downward in the water, so that tangling of line and leader are avoided.

3,757,454
TOP-WATER FISHING PLUG
Robert G. Shurley, P.O. Box 223, Meadville, Miss.
Filed Nov. 16, 1971, Ser. No. 199,145
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.16 2 Claims



A tapered, elongated top-water plug, equipped with a tail spinner, provides two alternative actions, depending upon line pull applied. The upper portion of the nose of the plug is forwardly concave, while the lower portion is substantially convex and slants downwardly and rearwardly. When pulled gently, the concave portion of the nose remains above water and the plug glides smoothly, with the tail spinner operating. When pulled with a slight jerk, the concave nose portion is pulled suddenly into the water, causing the abrupt noise and water commotion characteristic of "plunker" type plugs.

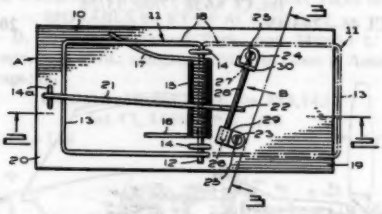
3,757,455
FISHING LURE
James W. Strader, Tallahassee, Fla., assignor to Capt. Jim Strader, Inc., Fort Lauderdale, Fla.
Continuation of Ser. No. 843,354, July 22, 1969, abandoned.
This application June 9, 1971, Ser. No. 151,543
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.14 2 Claims

A fishing lure having a spinner on the front end and a spinner on the rear end with each spinner formed so it will rotate in the same direction as the other spinner and means for varying the frictional hold on the spinners to vary the spin of each spinner so as to vary the rocking motion of the spinner in the water in order to flash the light-reflecting eyes and to produce a sound by causing the balls to move within the body of the lure and the balls to hit one another.

3,757,456
TRIGGER AND BAIT ARRANGEMENT FOR MOUSE TRAP

Joseph A. Lucci, 3833 Beresford St., San Mateo, Calif.

Filed July 11, 1972, Ser. No. 270,864
Int. Cl. A01m
U.S. Cl. 43—81 4 Claims

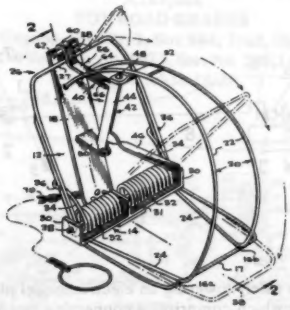


A trigger and bait arrangement for a mouse trap wherein a pair of spaced brackets are fixed to a base of the trap, one on each lateral side of a forwardly extending latching lever that is utilized for holding a swingably mounted bail in set position, one of the brackets defining a socket and the other bracket being fashioned with a slot, and an elongated edible trigger is adapted to overlie a free tip of the lever when the trap is set, with one end of the trigger being inserted into the socket and its other end is inserted into the slot, whereby the trap will be sprung when a mouse, or the like, nibbles through the trigger or withdraws the latter from the slot. The trigger extends diagonally relative to the length of the base when it is supported by the brackets, whereby the free tip of the lever may be moved laterally into a position to underlie the trigger when setting the trap.

3,757,457
HUMANE ANIMAL TRAP

Andrew M. Martin, Rt. 4, Box 71, Milford, Del.

Filed July 13, 1972, Ser. No. 271,386
Int. Cl. A01k *23/00*
U.S. Cl. 43—81 16 Claims



An improved humane animal trap having an obtusely angular frame of which one leg thereof more particularly forms a base which stabilizes the trap in its use condition. One of its two jaws is of large arcuate form with opposite end portions connecting it in a fixed manner to opposite end portions of said frame to form a generally circular animal entry opening therewith. The movable inverted U-shaped jaw is pivotally connected at its free leg ends to said frame and is spring biased toward its closed condition with the bight portion of the U-shaped jaw being arcuately movable outwardly adjacent the arcuate portion of the fixed jaw, and movable in a plane transvere to the direction of entry into the trap. The trap embodies a self-centering triggering and latch mechanism which includes an angular shaped trigger pivotally mounted on the frame and fixed jaw members and oriented at one side of the entry opening. The trigger has an upper portion slideably engageable in overlaying relation to a jaw-cocking latch member. The trigger is also provided with a trigger finger projecting into the entry opening to be moved by the animal upon entering the trap. The self-centering triggering and latch arrangement is more humane, being such that the animal while engaging the trigger must move a substantial distance into the trap, with attendant substantial relative sliding movement occurring between the trigger and latch before the latch is freed to release the spring-biased movable jaw, which then moves in the direction of the ground supported base frame portion, thereby precluding a tendency to overturn the trap which otherwise would tend to occur by a reverse direction travel of the jaw.

3,757,458
DOLL LEG CONNECTOR

Herbert Thorn, Flushing, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

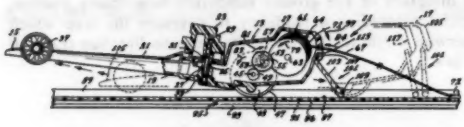
Filed Sept. 27, 1971, Ser. No. 183,897
Int. Cl. A63h *3/20*
U.S. Cl. 46—161 3 Claims

A limb connector mechanism is provided for use in a toy doll having a torso and a limb including an opening at one end thereof defined by an outwardly extending peripheral flange and rim formed at the free end of the flange. The connector mechanism includes a limb mounting frame secured in the torso and a flat disk or washer inside the limb positioned against the inner surface of the rim. A cap is positioned over the limb opening between the rim and the frame and has a peripheral flange portion, surrounding the limb flange, and keyed thereto in a predetermined position with respect to the limb. The cap, disk, and frame have aligned apertures therein and a connecting member having an enlarged head portion inside the limb, adjacent the disk, includes an elongated stem portion extending through the aligned apertures, with a shoulder facing the limb at its free end. A helical compression spring surrounds the stem and has one end thereof engaged against the frame and the other end thereof engaged against the shoulder to urge the disk and frame towards each other, to hold the rim and cap therebetween, so that the limb is rotatably connected to the frame and torso.

3,757,459
POWERED DRAGSTER HAVING LATERAL STABILITY COACTING WITH TRACK

Gordon H. Buck, 3784 Newton St., Torrance, Calif.; Joseph H. Bales, 9922 Garrett Cir., Huntington Beach, Calif., and Brian S. Prodger, 5002 Newton St., Torrance, Calif.

Filed Dec. 20, 1971, Ser. No. 209,794
Int. Cl. A63h 17/00, 18/08
U.S. Cl. 46—202 6 Claims

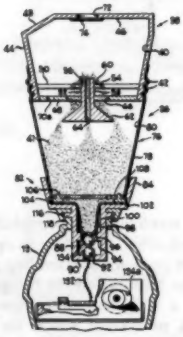


A powered toy vehicle resembling a high performance dragster racing machine both as to appearance and as to performance utilizes a trailing member which contacts the running surface and registers with the sidewalls of a vehicle track to provide lateral stability to the vehicle when its front wheels rise above the running surface.

3,757,460
DOLL HAVING COLLAPSIBLE TORSO PORTION WITH FLUENT MATERIAL THEREIN

Howard J. Morrison, Highland Park, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Dec. 30, 1971, Ser. No. 214,075
Int. Cl. A63h 29/12, 3/40
U.S. Cl. 46—41 6 Claims

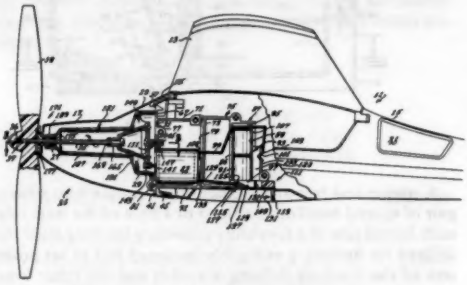


A doll which is intended to simulate the motions of going to sleep characterized by a two-part torso, one part of which is made of a yieldable material. The doll also has a head with eyelid structure which is movable to close the doll eyes. Fluent material, preferably in the form of sand, is provided in the interior of the doll and may be fed from the lower portion of the doll to the upper portion of the doll, following which the material will be metered slowly back to the lower portion of the doll during which the doll body will appear to slowly collapse and the eyelid structure will close, simulating the function of going to sleep.

3,757,461
IMPACT-DAMAGE-RESISTANT, PROPELLER-DRIVEN TOY

Richard S. Chang, Rolling Hills Estates; William A. Staats, Torrance; Denis V. Bosley, Palos Verdes Peninsula, and Toshio Yamasaki, Gardena, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Aug. 7, 1972, Ser. No. 278,507
Int. Cl. A63h 27/00, 33/26
U.S. Cl. 46—243 AV 20 Claims

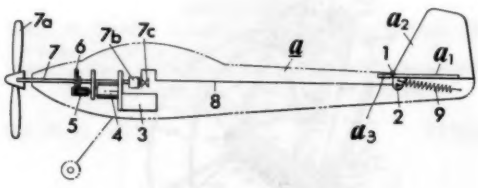


An impact-damage-resistant nose construction for use with propeller driven flying toy aircraft, the nose construction including an energy absorber connected to the fuselage and including a portion which is positioned between the propeller and the power plant with a movable coupling connecting a propeller shaft to the power plant so that the propeller may move axially relative to the power plant when the energy absorber is deformed by an impact.

3,757,462
SYSTEM FOR SAFELY LOWERING AN ELECTRIC MODEL PLANE

Kenichi Mabuchi, Matsudo, Japan, assignor to Mabuchi Motor Co., Ltd., Chiba, Japan

Filed July 14, 1972, Ser. No. 271,647
Claims priority, application Japan, July 14, 1971, 46/52312
Int. Cl. A63h 33/26, 27/00
U.S. Cl. 46—243 AV 5 Claims



A system for safely lowering an electric model plane of the free flight type which comprises a connecting means for connecting a propeller shaft with a tail assembly pivotally mounted on the tail portion of the plane and a spring means associated with said tail assembly. While the plane keeps flying, the connecting means is pulled forward by the propeller shaft due to a propelling movement against a spring force of said spring means thereby to hold the tail assembly in the normal horizontal flight position. When the propeller ceases to rotate through an exhaustion of a battery etc., the propeller is pushed back by a wind pressure accompanied by retraction of the connecting means thereby to urge the tail assembly to turn into an upwardly slanting position by the force of the spring means. Thus, the plane can go down in a vertical direction maintaining a substantially horizontal position thereof. There-

fore, it is possible to enjoy a flight of the plane in a limited space and to prevent the plane from being lost in an ascending air current or bump.

Further, the present system requires no setting mechanism nor remote control and can perform the operation automatically and securely.

3,757,463

DOLL WITH MOVABLE PART FOR COACTION WITH MOVABLE PART OF ACCESSORY

Jeffrey D. Breslow, Highland Park, and Marvin I. Glass, Chicago, both of Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 22, 1972, Ser. No. 228,142
Int. Cl. A63h *13/00, 5/00*
U.S. Cl. 46—118 **6 Claims**

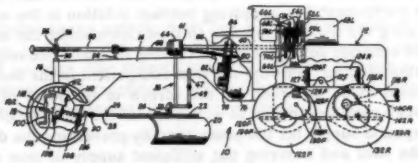
A doll and associated telephone accessory for the doll and for a participant for simulating response by the doll to a telephone call, characterized by the provision of fluid conduits and piston-like bellows associated with the telephone and doll component connected with the conduits for movement of components of the doll and actuation of the doll telephone responsive to depression of buttons on the participant's telephone.

3,757,464

TOY ROAD GRADER

Robert A. Gagnon, Star Rt. 2, Box 944, Trail, Oreg.

Filed May 30, 1972, Ser. No. 258,113
Int. Cl. A63h *33/26*
U.S. Cl. 46—244 A **11 Claims**



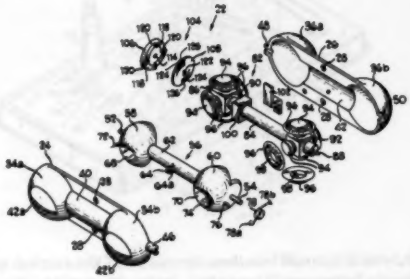
A toy electrical road grader is provided which is adapted to be operated by remote control from a portable electrical power supply and switch unit. The toy includes several reversible electric motors, one for turning a pair of front wheels to the right or left in unison for steering purposes, two for operating traction wheels forward simultaneously or backward simultaneously, and two for adjusting the height and the slope of a scraper blade.

3,757,465

DOLL

Gordon A. Barlow, Evanston, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed Dec. 30, 1971, Ser. No. 213,895
Int. Cl. A63h *11/00*
U.S. Cl. 46—135 R **8 Claims**



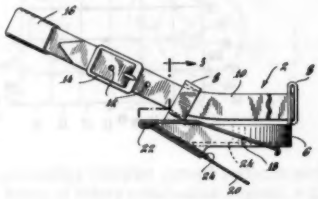
An animated doll having the ability to change eye colors, characterized by the provision of a rotatable indexable spindle in the doll having plural pairs of eye of different colors thereon, and eyelid means associated with the spindle for closing the eye opening during rotation of the spindle to present a new set of eyes to view.

3,757,466

NOISE MAKER TO BE WORN ON THE FOOT

George P. Strelakos, 25 Peak St., Stamford, Conn.

Filed Mar. 24, 1973, Ser. No. 127,720
Int. Cl. A63h *5/00*
U.S. Cl. 46—175 **2 Claims**



A noise maker having a heel well with a leaf spring containing housing attached to it. The spring is of the type producing a sound upon being bent and extends beyond the underside of the heel well. The noise maker is worn on the heel portion of the shoe of a child and held secure by an ankle strap. Upon walking a sound is produced as a result of the spring being compressed and released due to contact with the ground.

3,757,467

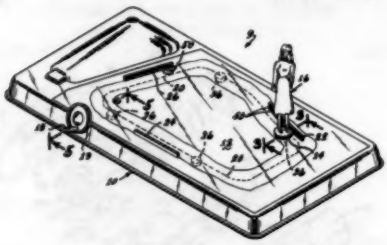
MOVING DEVICE FOR DOLLS

Emil H. Von Winckelmann, Van Nuys, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 12, 1971, Ser. No. 188,282
Int. Cl. A63h *33/26*
U.S. Cl. 46—240 **2 Claims**

A stage which moves magnetically attractable doll carriers along a prescribed path and occasionally rotates them to display all sides of dolls on the carriers. The stage includes a belt with notches extending beneath the path to be followed by a carrier, and magnets loosely held in the notches to be pulled with the belt. The carriers have gear teeth on their periphery

and the stage has several racks located along the carrier path to engage and rotate the carriers as they move along the path. Each rack is located a distance from the center of the belt



path, which is much less than the radius of the carrier, so that magnetic forces act like a spring urging the carrier sidewardly into firm engagement with the rack.

3,757,468

SEEDLING GROWER AND METHOD OF PLANTING SEEDLING CULTIVATED IN THE SEEDLING GROWER

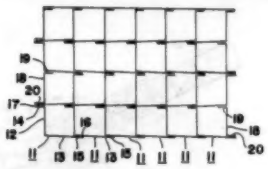
Atsushi Shirouzu, Sapporo City, Hokkaido, Japan, assignor to Kabushiki Kaisha Circle Tekkogo, Takikawa City, Japan

Filed Jan. 25, 1971, Ser. No. 109,360

Claims priority, application Japan, Feb. 2, 1970, 45/8578; July 21, 1970, 45/63717; Feb. 24, 1970, 45/15700; July 8, 1970, 45/59193; July 8, 1970, 45/59195

Int. Cl. B31d *5/04*; A01g *9/02*

U.S. Cl. 47—34.13 **2 Claims**



A seedling grower and a method of planting seedling cultivated in the seedling grower are disclosed. Said seedling grower is characterized by comprising a plurality of cells arranged in lattice form and formed by adhesively bonding together wall members made of a material such as paper, being collapsible when not in use and being able to be stretched into a spread lattice form from the collapsed state. Each of said cells is adapted to contain earth and cultivate a seedling therein.

3,757,469

PLANT WATERING AND FERTILIZING DEVICE

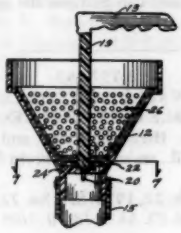
Charles T. Smith, 401 Alleghaney Ave., Towson, Md., and Irvin B. Ady, Sharon Acres Rd., Forest Hill, Md.

Continuation of Ser. No. 14,258, Feb. 24, 1970. This application Mar. 1, 1972, Ser. No. 230,859

Int. Cl. A01g *29/00*

U.S. Cl. 47—48.5 **1 Claim**

An irrigating and feeding device for plants having a reservoir member for holding a supply of water, a controlled flow seepage device for location adjacent the root system of the plant or plants to be treated and a conduit or fluid conductor connected between the reservoir and seepage device for conducting the fluid in the reservoir to the seepage device. The



seepage device may contain material of high moisture retention qualities and a soluble fertilizing agent for feeding the plants.

3,757,470

APPARATUS FOR HYDROPONIC CULTIVATION UTILIZING CATION EXCHANGER

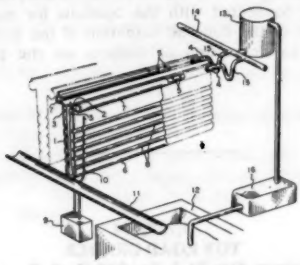
Takatsugu Shimamoto, 590 Osaka-fu, Ishizu-Kita-machi, 64-banchi, Sakai, and Yasumasa Kato, 386 Nagano-ken, Midorigaoka 1-chome, 25-ban, Ueda, both of Japan

Filed Dec. 3, 1971, Ser. No. 204,456

Claims priority, application Japan, Aug. 18, 1971, 46/44056

Int. Cl. A01g *31/02*

U.S. Cl. 47—1.2 **13 Claims**



An apparatus for hydroponic cultivation of plants based on the principle of establishing contact between the root of a plant suspended and held in position and a screen having cation exchangeability, supplying nutrient solution to the screen allowing the nutrient solution to flow down along the screen while ensuring sufficient contact of the root with the nutrient solution and air, allowing the iron component in the nutrient solution to be absorbed by the screen in the form of ions through cation exchange so as to prevent the shortage of iron compound supply for the plant, thereby preventing the decay of the root and ensuring the sufficient supply of iron component to the root.

3,757,471

CURTAIN WALL SAFETY PANEL

John S. Dougherty, Miami, Fla., assignor to Allied Products Corporation, Chicago, Ill.

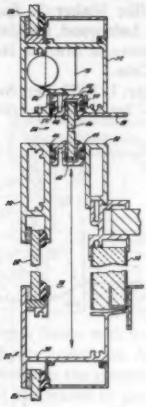
Filed Nov. 9, 1971, Ser. No. 197,013

Int. Cl. E05f *15/20*

U.S. Cl. 49—2 **2 Claims**

A safety curtain wall panel in a building is disclosed which includes a safety sash normally held in a closed position by a

latch but which is automatically moved to an open position with respect to the panel when a sensing device detects an undesired atmosphere in the building. By this means smoke or heat detected will cause the sash to open permitting the building to be ventilated.

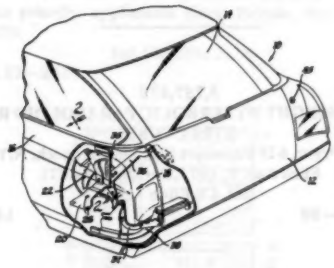


3,757,472

SYSTEM INCLUDING BI-DIRECTIONAL DRIVE MECHANISM WITH REVERSE DRIVE LIMIT

Deno J. Rogakos, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed July 21, 1971, Ser. No. 164,711
Int. Cl. E05f *15/12*
U.S. Cl. 49—40 **4 Claims**



A stationwagon vehicle body has a tailgate movable in an arcuate path between a lowered open position and a raised closed position. The tailgate is power actuated through a bi-directional drive mechanism which allows manual closing of the tailgate but prevents its manual opening.

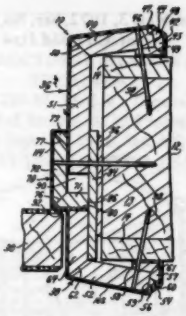
3,757,473

INTEGRAL PREFINISHED WOOD BASE DOOR AND SPLIT JAMB ASSEMBLY

William L. Mundy, St. Louis, Mo., assignor to Permaneer Corporation, Maryland Heights, Mo.

Filed Jan. 3, 1972, Ser. No. 215,172
Int. Cl. E06b *1/10*
U.S. Cl. 49—380 **7 Claims**

This invention relates to a door and jamb assembly and more particularly to one of a split, tongue and groove, jamb construction having a prefinished wood base. The jamb assembly includes male and female sections joined in a tongue and groove fashion for adaptability to various wall thicknesses, and each having a casing member and jamb member, and the female section having a doorstop, formed integrally for assembly as a one-piece unit. The entire jamb assembly is prefinished in vinyl, and the door is prehung on the female section.

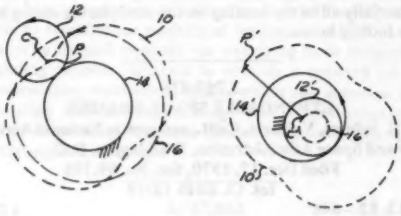


3,757,474

CURVED SURFACE GENERATOR

Harry Pedersen, Rochester, N.Y., assignor to The Gleason Works, Rochester, N.Y.

Filed Sept. 15, 1971, Ser. No. 180,585
Int. Cl. B24b *7/04*
U.S. Cl. 51—33 W **27 Claims**



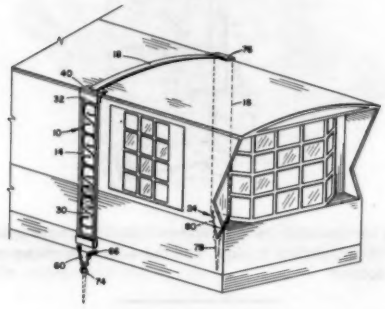
Apparatus for generating complex curved surfaces such as the epitrochoidal bores of rotary combustion engines, e.g., "-Wankel" engines. A workpiece is, in effect, fixed to a first imaginary cylinder which is rolled about the inner circumference of a larger second cylinder. A cylindrical cutting tool is positioned to contact the workpiece along a predetermined machining line which is parallel to the axes of the two imaginary cylinders, the machining line also being fixed relative to the larger of the two cylinders and outside of its outer circumference. The relative movement of the tool and workpiece causes the machining line to generate an eiptrochoidal surface on the workpiece, and this generated surface is maintained theroretically exact by maintaining the axis for the cylindrical cutting surface of the tool in a plane passing through the machining line and through the line of instantaneous tangency between the two imaginary cylinders as the smaller cylinder rolls relatively about the inner circumference of the larger cylinder. This combination of complex relative movements is provided by a relatively simple machine format which includes a drive mechanism utilizing three separately driven rotating gear members. The two members which simulate the rotation of the " imaginary" generating gears are concentrically mounted and do not intermesh or otherwise run relatively around the circumferences of each other, and all three drive gears rotate about axes which remain substantially fixed relative to each other at all times during machine operation.

3,757,475

SAFETY ANCHOR SYSTEM FOR MOBILE HOMES

Lloyd G. Hackworth, P. O. Box 133, Red Fork Station, Tulsa, Okla.

Filed Mar. 3, 1972, Ser. No. 231,609
Int. Cl. E04d *1/34*
U.S. Cl. 52—23 5 Claims



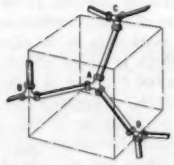
A safety anchor system for mobile homes comprising a pair of vertically disposed elongated ornamental side braces positioned one on each side of the mobile home, a roof strap bracket rigidly secured to the top of each side brace, an elongated strap positioned across the roof of the mobile home and having each end thereof secured to the roof strap brackets and adjustable anchor means secured to the bottom of each side brace for anchoring the system to the ground thereby placing substantially all of the loading on the roof plating strong points of the mobile home.

3,757,476

EXPANDABLE SPACE-FRAMES

Alan H. Schoen, Valencia, Calif., assignor to National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 17, 1970, Ser. No. 99,198
Int. Cl. E04h *12/18*
U.S. Cl. 52—646 1 Claim



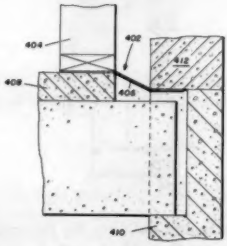
Expandable space-frames having essentially infinite periodicity limited only by practical considerations, are described. Each expandable space-frame comprises a plurality of hinge joint assemblies having arms that extend outwardly in predetermined symmetrically related directions from a central or vertex point. The outer ends of the arms form one part of a hinge joint. Each expandable space-frame also comprises a plurality of struts. The outer ends of the struts form the other part of the hinged joint. The struts interconnect the plurality of hinge joint assemblies so that an essentially infinite periodic space-frame is formed. By rotating all of the hinge joints in synchronism, the thusly formed space-frames can be expanded or collapsed. Three-dimensional as well as two-dimensional space-frames of this general nature are described.

3,757,477

FIRE BARRIER SYSTEM FOR MULTI-FAMILY DWELLINGS

Raymond L. McCrillis; Walter T. Fuller, both of Littleton; Richard H. Dixon, Lakewood, and John F. Oldani, Littleton, all of Colo., assignors to Marcor Housing Systems, Incorporated, Denver, Colo.

Filed Mar. 1, 1972, Ser. No. 230,825
Int. Cl. E04b *1/94*
U.S. Cl. 52—79 9 Claims



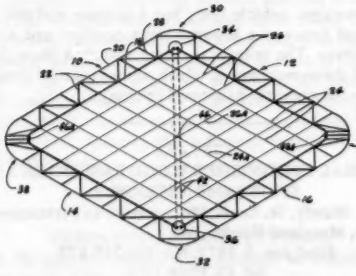
In a dwelling construction system, a multi-story, multi-family building comprises prestressed concrete pallets which are supported between load bearing walls to form the floors and the ceilings of individual dwellings. Each dwelling includes a service core comprising an enclosure formed on one of the pallets and complete mechanicals for the dwelling. The service cores are fabricated by mass production techniques and are subsequently transported to the building site for installation. In some instances the service core comprises a complete dwelling, in which case the enclosure of the service core may form the exterior walls and the roof of the dwelling.

3,757,478

LIGHTWEIGHT HYPERBOLIC PARABOLOID ROOF STRUCTURE

Eugene F. Pryor, 621 Fenimore Rd., Mamaroneck, N.Y.

Filed Apr. 4, 1972, Ser. No. 241,021
Int. Cl. E04b *1/32*
U.S. Cl. 52—80 14 Claims



The roof structure comprises at least one hyperbolic paraboloid formed by structural tension members stretched between bending stress resistant structural boundary members. The boundary members forming the edge members of the roof comprise thin trusses.

3,757,479

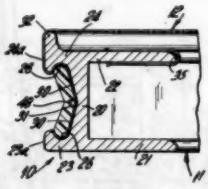
MIRROR

Eugene Martinez, Irvington, N.Y., assignor to Kamar Products, Inc., Irvington-on-Hudson, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,066

Int. Cl. A47g 1/00

U.S. Cl. 52—222 10 Claims



This mirror comprises a frame with an external continuous groove having opposed side undercuts. A flexible strip presses a flexible reflective sheet into the groove to hold said sheet in stretched condition on the frame to provide a smoth mirror surface. The flexible strip is normally of inverted V-shape, with wings that can be pressed down and toward each other to reduce the overall width of the strip to enable the strip to easily enter the groove, and press the reflective sheet into the groove. When the outer edges of the wings of the strip are in the groove, the apex of the strip is pressed down to invert its shape from inverted V-shape to V-shape to tightly press the mirror sheet into the undercuts. The top of the apex of the normal inverted V-shaped strip has a longitudinal slot to limit the inversion of the strip from inverted V-shape to V-shape as the slot closes.

3,757,480

PARTITIONS

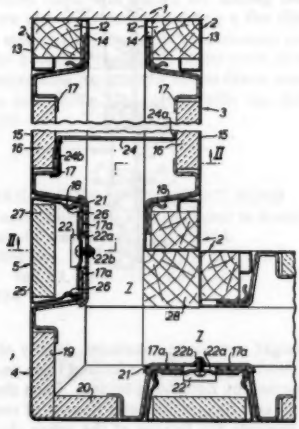
William Charles Trevor Young, Dagenham, England, assignor to Redpath Dorman Long Limited, London, England

Filed Nov. 8, 1971, Ser. No. 196,576

Claims priority, application Great Britain, Nov. 12, 1970, 53,952/70

Int. Cl. E04b 2/28

U.S. Cl. 52—241 8 Claims



A building panel for a walling or partitioning system, the panel comprising a metal sheet, a board of thermally and acoustically insulating material adhering to the sheet; and metal strips which additionally support the board, the strips being secured along the edges of the sheet adjacent the ends of the board and overlapping said ends, the edges of the panel defining looped sprung sections for engaging adjacent members of the system.

3,757,481

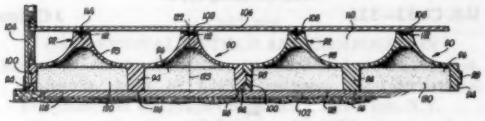
MONOLITHIC STRUCTURAL MEMBER AND SYSTEMS THEREFOR

Jerald Paul Skinner, 220 W. 33rd St., Topeka, Kans.

Continuation-in-part of Ser. No. 861,009, Sept. 25, 1969. This application Sept. 18, 1970, Ser. No. 73,345

Int. Cl. E04c 1/00; E04b 1/16

U.S. Cl. 52—265 11 Claims



A structural member suitable for diverse applications including foundation and ceiling systems comprises a lightweight, monolithic body particularly strong in compression and preferably composed of a synthetic resin that may be readily shaped by vacuum forming, expansion molding or other suitable techniques. Aligned rows of hollow, tapered support elements project from a uniform lattice and present spaced, load-supporting surfaces. In a foundation or ceiling system, the lattice is the base of the body and the load-supporting surfaces define the mounting centers for the overlying floor or roof. Accordingly, the base of the body presents a grid of surfaces on its underside at the mouths of the cavities formed by the hollow support elements. In a foundation system, the base grid directly overlies a pad of sand, silt or gravel chips to seal each individual cavity and thereby trap air therein to establish air pockets of resistance to load. A single chamber is formed beneath the overlying floor between the upstanding support elements to provide a network of intercommunicating mechanical chases which also serves as a duct for heating and air-conditioning. One embodiment of the member is specially shaped to spread a nonuniformly applied load throughout its body.

3,757,482

SANDWICH SLAB CONSTRUCTION AND ANCHOR THEREFOR

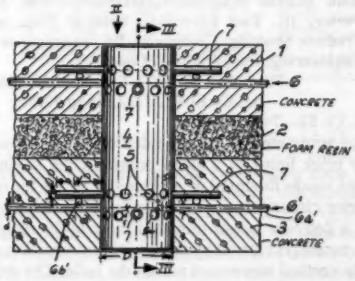
Ernst Haeussler, Grashofstr 47, 43 Essen-Bredeney, Germany

Filed Feb. 22, 1971, Ser. No. 117,673

Claims priority, application Germany, Feb. 24, 1970, P 20 08 402.0

Int. Cl. E04b 2/28

U.S. Cl. 52—405 6 Claims



A sandwich-slab structure has a front concrete plate and a rear concrete plate which are generally coextensive and sand-

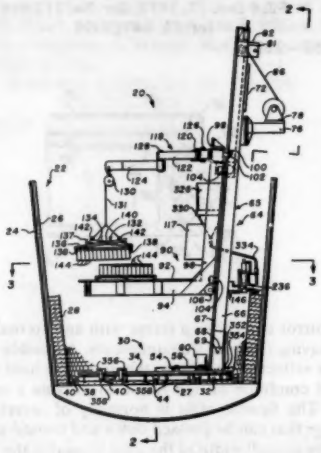
wich a layer of insulating material, e.g., a sheet or plate of foamed synthetic resin, between them. The layer of insulation is traversed by a plurality of connectors or anchors in the form of tubules or sleeves having opposite ends received in the concrete plates and provided with transverse formations for anchoring the sleeve in each concrete plate, preferably by engagement with a reinforcing mat.

3,757,483
SILL TRIM STRIP AND PANEL SIDING
Richard L. Torbett, Akron, Ohio, assignor to Alsco Anaconda, Inc., Akron, Ohio
Filed Aug. 13, 1971, Ser. No. 171,539
Int. Cl. E04d 1/34
U.S. Cl. 52—522 **3 Claims**

A trim strip for use with metal wall siding to retain a piece of siding or other member below a window sill or other projecting member in a building. The trim strip is formed of sheet metal and has a substantially flat body portion and a lip portion which is bent from the upper edge of the body portion in substantially V or U-shaped relation to the body portion and which terminates in an edge portion which is curled upwardly between the body portion and the lip. The trim strip is secured to the wall below the lower surface of the sill or other projecting member. A conventional piece of metallic siding is trimmed to the desired height to fit below the sill and has a series of outwardly projecting lugs or fingers formed along its upper edge to engage the trim strip and float with relation thereto.

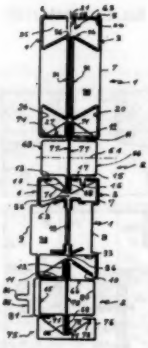
3,757,484
AUTOMATED BRICKLAYING DEVICE
Ronald Eugene Williamson, Hammondsville; Sidney Clark Porter, Jr., East Liverpool, both of Ohio, and Kenneth Frederic Shotting, Coraopolis, Pa., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed May 15, 1972, Ser. No. 253,546
Int. Cl. E04g 21/22; B65g 37/00
U.S. Cl. 52—749 **34 Claims**

An automated bricklaying device for laying out the refractory brick lining of a metal pouring ladle having an upright frame means mounted on a mounting means for traversing the interior circumference of the ladle. A platform means, which has a delivery means mounted thereon for reciprocal lateral movement, is carried by the upright frame means for substantially vertical movement within the ladle. The delivery means continuously delivers a series of refractory bricks in turn to the circumference of the ladle to be set as the lining thereof. A positioning and indexing means properly positions each brick in turn in the lining as it is delivered from the delivery means. The positioning and indexing means additionally serves to index the upright frame means to a proper position for placement of the next succeeding brick in the lining. A vertical



guidance means on the delivery means provides vertical elevational control of the platform means relative to the built up lining.

3,757,485
LIGHTWEIGHT COMPOSITE BUILDING CONSTRUCTION
Rene Vincens, Ancourt Par Neuville Les Dieppe, France, assignor to Societe d'Etude et de Promotion d'Entreprises
Filed Oct. 4, 1971, Ser. No. 186,188
Int. Cl. A47f 5/00
U.S. Cl. 52—731 **14 Claims**



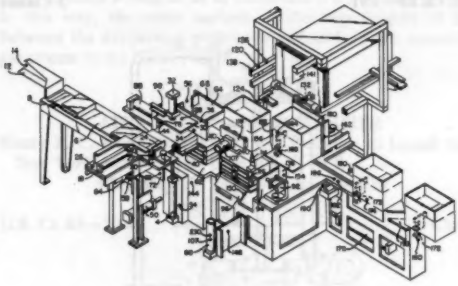
Lightweight composite structures, mostly of profiled sheet metal, comprising a main joist formed from two outer sheaths interconnected by rigidifying bridges. Each sheath comprises a web with end flanges, the end flanges of one sheath being directed towards the flanges of the other sheath. Each mutually opposed pair of flanges are spaced apart to provide a slot providing access to a housing within the joist and defined by the bridge and the sheaths. The bridges also provide the means whereby the main joist and other similar joists and accessories may be interconnected to produce frameworks, divisions, walls, partitions, ceilings, shelving, articles of furniture and the like, for industrial and private use.

3,757,486

APPARATUS FOR PACKING OBJECTS IN A CARTON

Ludwig J. Feurston, and Frederick F. Koehn, both of Box 715, Sheboygan, Wis.

Filed Feb. 10, 1972, Ser. No. 225,086
Int. Cl. B65b *35/50, 43/30, 43/42*
U.S. Cl. 53—162 21 Claims



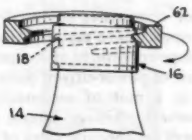
Apparatus for packing a plurality of objects, such as, reams of paper, in a carton which, includes; means for moving a single layer of the objects onto a retractable elevator plate; means for lowering the elevator plate the height of one layer of objects: first transfer means for transferring a pre-determined stack of the objects from the elevator plate to another plate, where two sides of the stack of objects are squared by the first transfer means and a backup plate; second transfer means for moving the objects onto a cartoning plate; retractable stop plate means positioned on the opposite side of the second transfer means and together with the second transfer means adapted to square the other two sides of the object; means for removing a folded carton from a carton rack and simultaneously breaking the carton to form it into a generally tubular configuration with top and bottom flaps open; means for lowering the carton over the stack of objects; means for breaking one flap of the carton outwardly and means for spreading the opposite two corners of the bottom flaps, thereby causing the other three flaps to open outwardly and to form a funnel with the first mentioned flap as the carton is lowered over the stack of objects; means for applying glue to two of the bottom flaps; and means for folding the bottom flaps. Means are also provided for adding a flat filler to the bottom of the stack of objects prior to cartoning and means are provided for detecting the height of the stack of objects in the carton, determining the number of flat fillers necessary to fill the carton and filling the carton with the determined number of fillers.

3,757,487

THREAD FORMING CAPPING HEAD

Frederick E. Fauth, Baltimore, Md., assignor to American Bottlers Equipment Company, Baltimore, Md.

Filed Dec. 30, 1971, Ser. No. 214,173
Int. Cl. B65b *7/28*; B67b *3/18*
U.S. Cl. 53—334 9 Claims



A novel capping head is disclosed for effecting the thread forming of a generally cylindrical closure cap disposed over male threads about an open neck portion of a container such as a bottle. The capping head comprises an annular or ring-like roller having an internal diameter greater than the external diameter of the closure cap. The annular roller is mounted within a housing and is initially selectively positioned about the closure cap such that the roller encircles the cap. The housing is then tilted from its central axis such that the inner periphery of the annular roller therein contacts the closure cap. Rotation of the housing in a conical eccentric manner effects eccentric movement of the annular roller about and relative to the closure cap such that the inner periphery of the roller deformably engages the outer periphery of the closure cap and forms threads therein.

3,757,488

GAS REMOVAL METHOD AND COMPOSITION

Robert R. Austin, Pasadena, and Arthur Leonard Vincent, Monrovia, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Division of Ser. No. 188,540, Oct. 12, 1971, abandoned, Continuation-in-part of Ser. No. 137,994, April 27, 1971, abandoned. This application Dec. 5, 1972, Ser. No. 312,293
Int. Cl. B01d *53/16*
U.S. Cl. 55—73 8 Claims

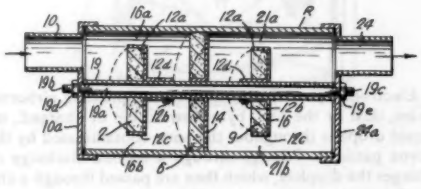
A selective method of removing sulfur dioxide from flue gases or the like containing both sulfur dioxide and hydrogen sulfide without removing the hydrogen sulfide by bubbling the flue gas through about a 5–95 percent solution of an organic acid and an alkali metal salt of the said acid. The acid is selected from the group of: citric malic, lactic, succinic, ascorbic and tartaric. The acid is preferably citric and the alkali metal is preferably potassium. The ratio of the weight of the salt to that of the acid may be within the range of about 1*s*: 2*a* to 6*s*: 1*a* as such as is needed to make the solution pH between about 4.0 and 6.0, where *s* and *a* are one mole each of said salt and said acid, respectively. The said ratio preferably is 5*s*:1*a* or the pH is preferably 5.7.

3,757,489

POLLUTION CONTROL

John Evanshen, Montreal, Quebec, Canada, assignor to Teep Toxic Control Ltd., Montreal, Quebec, Canada

Filed Dec. 4, 1970, Ser. No. 95,016
Int. Cl. B01d *53/04*
U.S. Cl. 55—74 6 Claims



Environment pollutants are treated by bringing them into contact with polyvinylpyrrolidone. Preferably, this substance is in a composition with a carrier material, preferably vermiculite. The composition may contain a nitrate of sulphate of copper or silver. Desirably, the composition is in the form of a self-supporting plaque which can form part of a pollution-controlling device. A preferred use of the invention is in treating gases resulting from the combustion of fuel containing pollutants. Devices are disclosed in which exhaust gases go through a passage in which they contact successive baffle members surfaced with pollutant-arresting material.

3,757,490
CHROMATOGRAPHIC ADSORBENTS

James C. N. Ma, 138 B Boundry St., Kowloon, Hong Kong

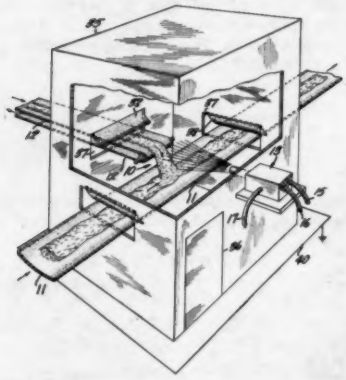
Filed June 7, 1971, Ser. No. 150,849
Int. Cl. B01d *15/08*
U.S. Cl. 55—67 19 Claims

Improved chromatographic separations are achieved with solid-liquid chromatography by employing particles of a specified particle size distribution, whereby the large to small size particle weight ratio is defined as having 70 to 90 parts of coarse particles, wherein at least 90 weight percent of the particles have diameters within 10 percent of the average diameter, and 10 to 30 parts of fine particles, the average diameter being 10 to 20 percent of the average diameter of the coarse particles, and having at least 50 weight percent of the particles within 50 percent of the average diameter of the fine particles.

3,757,491
APPARATUS FOR SUPPRESSING AIRBORNE PARTICLES

Meredith C. Gourdine, West Orange, N.J., assignor to Gourdine Systems, Inc., Livingston, N.J.

Filed Nov. 5, 1970, Ser. No. 87,235
Int. Cl. B03c *3/00*
U.S. Cl. 55—107 1 Claim

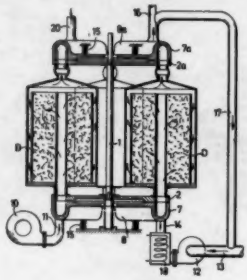


Electrogasdynamic apparatus for suppressing airborne particles, dust or the like, by a distribution of charged, minute liquid droplets throughout the zone contaminated by the airborne particles. Passage through a corona discharge region charges the droplets, which then are passed through a channel to the contaminated zone. There, a space charge field is established. As they continue to be forced through the channel, the charged droplets decelerate under the influence of an axial field gradient. An electrogasdynamic exchange occurs, by which the droplets exchange kinetic energy for electrical potential. The droplets disperse, passing among the contaminant particles, attracting, being attracted to, and charging contaminant particles. Now having an associated electrical charge, the particles move to nearby surfaces. An enclosure about the contaminated location reduces the spread of airborne particles and adds additional collection surface area. In mining, dust is suppressed at mine product transfer points, or the dust control apparatus is mounted on a continuous mining machine effectively to isolate the machine's operator station from locations of greatest dust concentration.

3,757,492
ADSORBER METHOD AND APPARATUS

Roderich W. Graff, Kollwitzweg 19, Darmstadt-Arheilgen, Germany

Filed May 20, 1971, Ser. No. 145,312
Claims priority, application Germany, May 23, 1970, P 20 25 205.5
Int. Cl. B01d *53/06*
U.S. Cl. 55—181 3 Claims

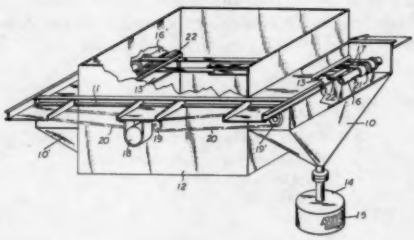


An adsorption medium is confined in at least two discrete chambers. A stream of water vapor is passed through one of the chambers for a predetermined time and thereupon through the other of the chambers. A stream of heated gas is passed through the first chamber after flow of the stream of water vapor therethrough has terminated, in order to regenerate the adsorbing medium in the first chamber. During part of the time for which the stream of heated gas is passed through the first chamber, some of the gas issuing from the first chamber is recirculated into the regenerating circuit and/or supplied to the second chamber subsequent to termination of the flow of the stream of water vapor therethrough.

3,757,493
DE-MISTER DEVICE

Robert A. Johnston, Monroe; Daniel Docherty, Fairfield, and Robert L. Arrington, Trumbull, all of Conn., assignors to Caledon Engineering, Inc., Fairfield, Conn.

Filed June 8, 1972, Ser. No. 261,034
Int. Cl. B01d *46/22*
U.S. Cl. 55—242 1 Claim



De-mister device comprising essentially one or more belts of open mesh or open weave material, resistant to the corrosion and temperature conditions of its operating environment, supported by a pair of power-driven pulleys or rollers respectively journaled in a pair of receptacles, supported by a framework to connect, through lateral openings with corresponding openings on opposite sides of a duct or stack, the belts passing through said openings across the duct or stack with their flat sides facing the direction of flow of particle-laden gases passing through the duct or stack; and a manifold or lance within each receptacle, extending parallel to each pulley or roller — e.g., between the two lengths of belt sup-

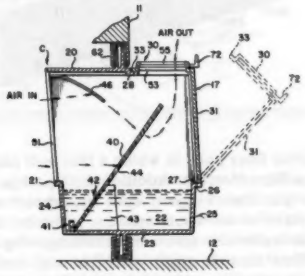
ported by the pulleys — adapted to direct pressurized jets of air, steam or other fluid against the belts to remove particulate material accumulated on the belts and direct it toward the base of the receptacle. Preferably, one length of belt between the pulleys is reversed by passage over a guide bar between the pulley and the adjacent opening to the duct or stack so as to maintain a 180° twist between the roller and the guide bar — such twist being thus maintained at both ends of the length of belt if the belt itself includes no twist, and at one end if the belt itself includes a twist so as to constitute it a Moebius surface. In this way, the same surface of the two lengths of belt between the supporting pulleys or rollers face the oncoming gas stream in the duct or stack.

3,757,494

AIR PURIFIER AND HUMIDIFIER

Henry P. C. Keuls, New York, N.Y., assignor to Luxair Inc., New York, N.Y.

Filed May 19, 1972, Ser. No. 254,929
Int. Cl. B01d *45/10*
U.S. Cl. 55—234 **9 Claims**



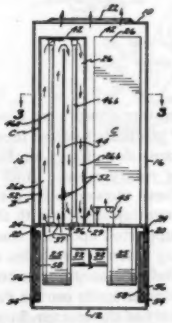
A window-mounted air purifier and humidifier is provided, comprising a two-part casing or housing, one of which parts has a wall for inlet of external air and is formed at its lower end with a well portion for containing a supply of water and for holding a partially submerged air scrubber or wick. Desired paths of flow of air entering the device are facilitated by a depending vane directed toward the wick. The other part of the casing serves as a closure and constitutes a portion of the top wall and a portion of the front wall of the casing. Means are formed on the exterior of the casing to enable it to be mounted on the window sill in a position such that not more than about one-half of its depth protrudes into the interior of the room.

3,757,495

PORTABLE AIR PURIFIER

William E. Sievers, 5140 Vista Hermosa, Long Beach, Calif.

Filed Dec. 30, 1971, Ser. No. 213,957
Int. Cl. B01d *25/02*
U.S. Cl. 55—279 **9 Claims**



A unit, either stationary or portable, that recycles the air within a room or other interior area to concurrently subject the air to filtering treatment to remove entrained solid particles, gases, oxidants associated with smog and other vapors, as well as to the action of germicidal ultra violet light in order to destroy contagious and infectious, airborne micro-organisms such as bacteria, staphylococcus, hepititus, virus and other harmful, viable organisms that may be present in the air.

Solid particulate matter that is removed from the air by the unit includes dust, pollens, fungi, molds, lint and the like. Reactive gases and vapors that are removed from the air as it flows through the unit include the oxidants associated with smog, unburned hydrocarbons, ozone, tobacco odors, smoke and other materials in vapor form that are harmful to human health, including traces of mercury in vapor form existing in the air.

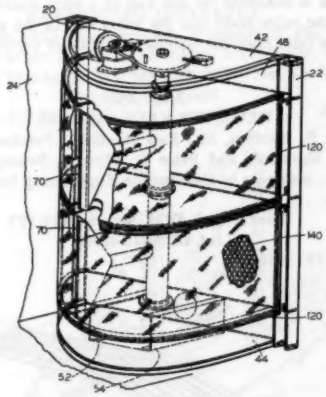
The unit is particularly adapted for use in any interior area wherein contaminated air effects health, whether human or animal, such as in doctors' and dentists' offices, examining and waiting rooms, hospital areas, including operating rooms, contagious wards, patient burn rooms, nurseries, food preparation quarters, morgues, or any other of the many areas in which disease may be spread by airborne means. The same holds true as to animal hospitals, veterinarians' waiting rooms, operating rooms and the like.

3,757,496

APPARATUS FOR COLLECTING FILTERED AIRBORNE

Arthur Henry Berg, Central Square, N.Y., assignor to Cambridge Filter Corporation, Syracuse, N.Y.

Continuation-in-part of Ser. No. 103,461, Jan. 4, 1971, abandoned, which is a continuation-in-part of Ser. No. 791,266, Jan. 15, 1969, abandoned. This application July 13, 1972, Ser. No. 271,381
Int. Cl. B01d *46/02*
U.S. Cl. 55—293 **16 Claims**

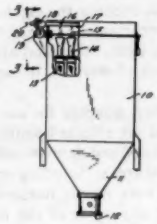


Apparatus for collecting filtered airborne solid particles employing a rectangular section of filtering screen affixed to arcuate and vertical frame members to present a semi-cylindrical surfaced filtering screen arranged in the path of flow of air a suction nozzle having an orifice reciprocally movable about an axis concentric with the axis of the arcuate members and screen, means for applying suction to remove from the concave side of the screen solid particles deposited thereon, means for periodically oscillating the nozzle over substantially the entire arcuate length of the filter screen, optional means to stop the oscillation midway across the screen, and a perforate semi-cylindrical support shell disposed on the outside of the screen.

3,757,497
CONTROL VALVE FOR PULSE JET TYPE FILTER APPARATUS

Frank M. Ray, Chicago, Ill., assignor to The Slick Corporation, New York, N.Y.

Filed Mar. 16, 1972, Ser. No. 235,374
Int. Cl. B01d *46/04*
U.S. Cl. 55—302 **6 Claims**

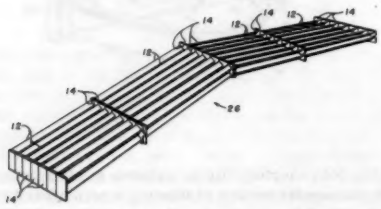


A control valve for pulse jet type filter apparatus has a header supplying compressed air to the control valve through a port formed in the header. A blowpipe is disposed over filter bags of the filter apparatus and has aligned nozzles for periodically directing pulse air into the filter bags for removing accumulated dust. The control valve is positioned between the header and the blowpipe for periodically allowing a pulse of air to pass from the header into the blowpipe. The control valve has an internal header passage communicating with the header and an internal blowpipe passage communicating with the blowpipe. A diaphragm is disposed in a passage between the header and blowpipe passages allowing pulse air to flow periodically from the header to the blowpipe. A manually operated isolator valve is advantageously provided and has a disk movable into a position to stop the flow of air from the header into the internal header passage of the control valve. The disk is mounted on one end of a stem slidably mounted within the valve body and the other end of the stem extends from the valve body for manual operation of the isolator valve.

3,757,498
DEMISTER VANE ASSEMBLY

William B. Hurlbut, Sr., East Hartford; Preston D. Liebig, West Hartford, and Peter G. Maurin, Newington, all of Conn., assignors to Combustion Engineering Inc., Windsor, Conn.

Filed Aug. 5, 1971, Ser. No. 169,393
Int. Cl. B01d *45/00*
U.S. Cl. 55—440 **6 Claims**

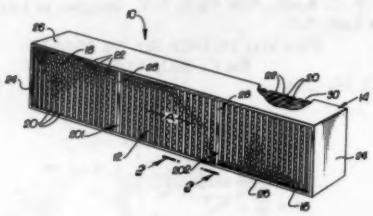


A demister vane assembly particularly resistant to corrosion and capable of interchangeable organization into a multiplicity of area and geometrical configuration arrangements. The demister vane assembly is formed in a standardized shape of a reinforced plastic capable of withstanding the thermal and chemical environment of a wet scrubber system. The standardized shape is a flow diverting surface preferably formed as a Z-shaped vane having end platforms angled approximately 60° to the longitudinal axis of the vane, the platforms having lap joint shoulders and self-fixturing segments. By means of the standardized shape, the vanes may be arranged, both end to end as well as side by side, to yield any desired demister area and geometrical configuration.

3,757,499
STIFFENED ABSOLUTE FILTER PACK

Robert D. Scott, West Covina, Calif., assignor to Hepa Corporation, South El Monte, Calif.

Filed Nov. 4, 1971, Ser. No. 195,732
Int. Cl. B01d *27/08*
U.S. Cl. 55—500 **6 Claims**

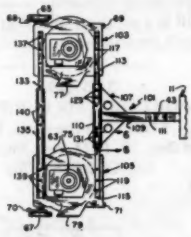


An absolute filter pack in which a thin wall plastic frame is used with a filter element. Additional support is provided intermediate the filter element ends by support members inserted in place of the usual spacers, whereby the fiberglass web filter is continuous across the frame opening and relatively more filter area is made available and seal points are reduced in comparison with subdivided filter packs.

3,757,500
MULTIPLE UNIT LAWNMOWER CONSTRUCTION

Marnie C. Averitt, 107 Westdale Court, Timonium, Md.

Filed Oct. 12, 1971, Ser. No. 188,267
Int. Cl. A01d *75/30*
U.S. Cl. 56—6 **5 Claims**

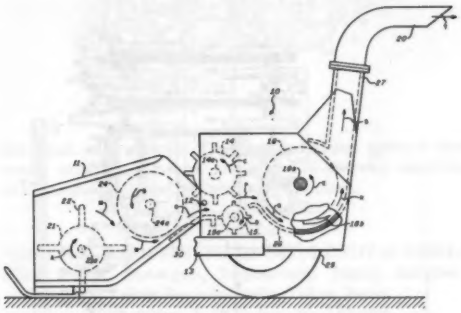


A powered lawnmower comprising a powered tractor having a trailing mower assembly hitched thereto. The trailing assembly includes a frame detachably hitched to the tractor and having a plurality of rotary mower units secured thereto. In one embodiment, these mower units are positioned so that their cutting swaths overlap slightly with the cutting swath of a rotary mower unit supported upon the tractor. In another embodiment, the trailing assembly includes a plurality of rotary mower units which define a continuous cutting swath. In both embodiments, the mower units on the trailing assembly are powered independently of the tractor. In addition, the trailing assembly is vertically adjustable for different cutting heights, and the trailing mower units may be laterally adjustable for different cutting widths.

3,757,501
STATIC MAGNETIC FIELD METAL DETECTOR

Clarence Leonard Bennett, Jr., Groton; Joseph D. DeLorenzo, Sudbury, and Hubert R. Durling, Jr., Lancaster, all of Mass., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed Oct. 29, 1971, Ser. No. 193,846
Int. Cl. A01d *69/10*
U.S. Cl. 56—10.2 12 Claims

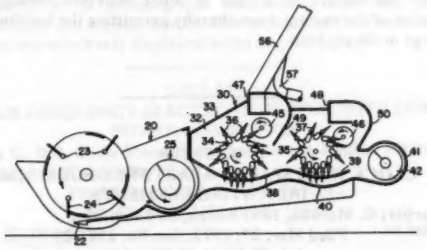


A static magnetic field detector senses the passage of ferrous or magnetic objects, employing a balanced pick up coil configuration providing substantial self-cancellation of spurious background signals. The pick up coils are disposed in a uniform static magnetic field and are cooperatively effective to sense the presence of such objects with respect to an extended passage way by reacting to the field distortion caused by the object to produce an alarm or control signal. Further reduction of the effects of spurious background signals is afforded by novel means for processing the signals generated within the detector coils providing filtering and threshold functions. An adaptive threshold control circuit provides automatic adjustment of the threshold level of object detection.

3,757,502
COTTON HARVESTER

Arthur Lowell Hubbard, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Mar. 11, 1971, Ser. No. 123,249
Int. Cl. A01d *45/18*
U.S. Cl. 56—28 14 Claims

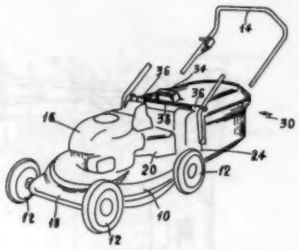


A cotton harvester having a forward cotton harvesting mechanism that feeds cotton to a central fore-and-aft extending housing in which there is provided a rotatable horizontal transverse drum that has radially extending spindles that contact and retain cotton bolls on the plants as they pass through the housing.

3,757,503
LAWNMOWER AND GRASS COLLECTOR

Theodore Soldavini, 2 Via Trento Cassano d. adda, Milano, Italy

Filed May 4, 1972, Ser. No. 250,271
Claims priority, application Italy, May 10, 1971, 24312 A/71
Int. Cl. A01d *35/22*
U.S. Cl. 56—202 10 Claims

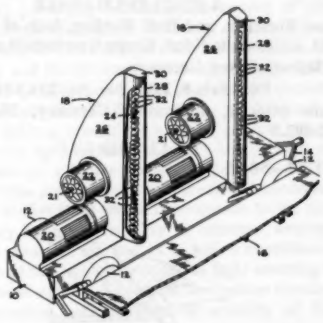


The specification describes a lawnmower having a motor driven grass cutting and centrifuging rotor operating into an open-bottom casing having an outlet passage for blowing cut grass and mulch carrying air into a collecting box. The collector box has an open face greater than the outlet of the passage and amply circumscribing the same. Screen means are located in the area of said open face obout said outlet for holding back the grass from the air flow reversed in said collector and passing through said screen means, and downwardly deviated and open passages are provided downstream of said screen means in said area for deviating and exhausting on the ground the air and mulch escaping from the collector.

3,757,504
HARVESTING APPARATUS

Glen E. Rauth, 1918 Stonehurst Rd., Winter Park, Fla.

Division of Ser. No. 803,770, March 3, 1969, Pat. No. 3,568,417. This application Sept. 21, 1970, Ser. No. 73,920
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 R 5 Claims



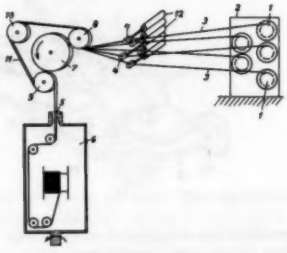
A fruit harvesting apparatus is provided to direct continuously swerving air at fruit trees in converging currents from two air discharge openings. The air is discharged so that as it gets further away from its source and loses energy, it is superimposed on other swerving air to re-establish the failing energy of the individual air currents and increase the harvesting effectiveness of the apparatus. The swerving air effect is accomplished through the use of wobble air vanes mounted in the air discharge openings of the apparatus, and they serve to deflect the discharged air in a swerving manner, to cause wafting of the limbs in a generally elliptical pattern resulting in the abscission of fruit from the tree.

3,757,505

APPARATUS FOR CHANGING THE RELATIVE POSITION OF THE CONDUCTORS DURING THE MANUFACTURE OF A TELECOMMUNICATION CABLE

Torsten Otto Neovius, Saltsjobaden, and Karl-Erik Svensson, Hagersten, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Feb. 10, 1971, Ser. No. 114,292
Claims priority, application Sweden, Feb. 25, 1970, 2416/70
Int. Cl. H01b *11/04*
U.S. Cl. 57—34 R 2 Claims



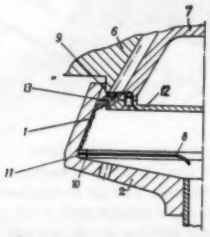
There is disclosed a device for varying the relative locations of stranded wires in a cable during the manufacture of such cable comprises a plurality of wire guides, one for each wire, for guiding the wires as the same are fed into a wire twisting machine. The wire guides are independently movable between two limit positions extending across the generally parallel travel path of the wires so that each of the wires can be guided in any selected position relative to the position of the other wires in the cable.

3,757,506

APPARATUS FOR THE SPINNING OF STAPLE FIBERS IN A RINGLESS MANNER

Gerhard Kutscher, and Rolf Wehling, both of Bremen, Germany, assignors to Fried, Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Feb. 8, 1972, Ser. No. 224,545
Claims priority, application Germany, Mar. 10, 1971, P 21 11 402.3
Int. Cl. D01h *1/12*
U.S. Cl. 57—58.95 8 Claims



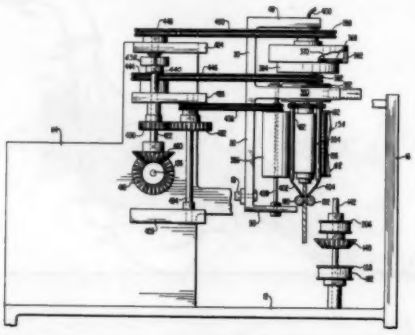
An apparatus for use in connection with the spinning of staple fibers in a ringless manner, in which the fibers withdrawn from a sliver by an opening-up roller are by means of a centrifugal disc at the bottom of said roller conveyed and directed upon an inlet wall portion of a spinning turbine.

3,757,507

OPEN END ROVING, SPINNING, AND SPINNING AND TWISTING METHODS

Daniel W. Maxham, Rt. 3, Austell, Ga.

Division of Ser. No. 883,226, Dec. 8, 1969, Pat. No. 3,555,802, which is a continuation-in-part of Ser. No. 788,216, Dec. 31, 1968, Pat. No. 3,488,935. This application Oct. 7, 1970, Ser. No. 78,958
Int. Cl. D02g *3/00*
U.S. Cl. 57—156 3 Claims



An open end roving, spinning, and spinning and twisting machine in which a twist belt or twist drum or twist drums cooperates with an elongate twist needle along the length of which drafted lengths of fibrous material are delivered sequentially so that the fibrous material will be loaded and wound upon the twist needle and then passed to delivery rolls for removing the fibrous material as a continuous length from the twist needle while imparting twist thereto. The twist needle is sandwiched between the rotating twist drums or the twist belt and a rotating twist drum having individual sectors which longitudinally reciprocate and help in feeding the fibrous material from the twist needle. The twist needle may be hollow so as to receive and pass a roving, yarn or the like which is integrated into the final product. A single twist needle or plurality of twist needles may be used, mounted in a circular pattern around the circumference of the twist drum and sequentially indexed to be engaged with the twist belt or twist drum or drums while a drafted length of fibrous material is fed thereto. In this fashion a multi-ply yarn may be obtained. The central twist drum contains a hollow central shaft which permits the feeding of a yarn or other materials through the center of the central drum thereby permitting the building of a large multi-ply yarn.

3,757,508

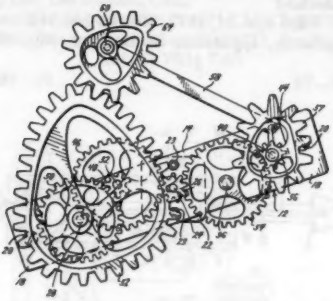
CLOCK WITH SPACED-APART FREE-FORM TIME-INDICATING ELEMENTS

Norbert G. Marklin, 1045 Baden, St. Louis, Mo.

Filed Mar. 27, 1972, Ser. No. 238,329
Int. Cl. G04b *45/02*, *19/02*
U.S. Cl. 58—2 12 Claims

The minute-indicating element and the hour-indicating element of a clock are irregularly shaped and are distinctively different from each other. The centers of area of those time-indicating elements are mounted eccentrically on fixed pivots; and those fixed pivots are spaced apart a distance greater than the sum of the radii of the most-eccentric portions of those time-indicating elements. Those most-eccentric portions ap-

proach, but cannot overlap, each other's path; but those most-eccentric portions recurrently overlap and expose portions of



the gears of the clock. The hour-indicating element recurrently raises and lowers an arm, and thereby recurrently changes the aesthetic appearance of the clock.

3,757,509

CHRONOGRAPH TIMEPIECE USING DIGITAL DISPLAY

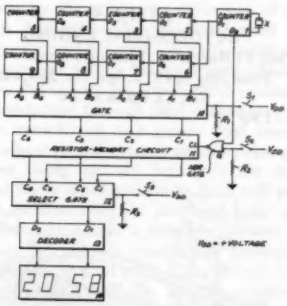
Kinji Fujita, Suwa-gun, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Mar. 7, 1972, Ser. No. 232,468

Claims priority, application Japan, Mar. 8, 1971, 46/11984

Int. Cl. G04c *3/00*; G04f *3/06*

U.S. Cl. 58—23 R **2 Claims**



A chronograph timepiece using digital display in an electronic chronograph watch in which digital display is effected by a liquid or solid state display device, wherein the time of day is measured by a watch mechanism and a time period is measured by a chronograph mechanism and these are memorized in a resistor device. The memorized time and time period are selectively displayed in the display device.

3,757,510

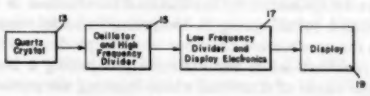
HIGH FREQUENCY ELECTRONIC WATCH WITH LOW POWER DISSIPATION

Hans G. Dill, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed July 3, 1972, Ser. No. 268,291

Int. Cl. G04c *3/00*; G04b *19/30*

U.S. Cl. 58—23 R **3 Claims**



An extremely thin and small electronic watch made possible by a crystal oscillating in the megahertz range and coupled to the display of the watch through two frequency dividers having basically different characteristics.

3,757,511

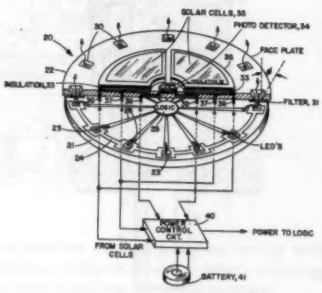
LIGHT EMITTING DIODE DISPLAY FOR ELECTRONIC TIMEPIECE

Ronald R. Burgess, Phoenix; Michael G. Coleman, Tempe, and Lawrence A. Grenon, Phoenix, all of Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 17, 1971, Ser. No. 143,837

Int. Cl. G04c *3/00*; G04b *19/06*

U.S. Cl. 58—50 R **27 Claims**



There is disclosed a light emitting diode timepiee display in which the output of the light emitting diode display is controlled with respect to ambient lighting conditions so as to provide the maximum amount of contrast with a minimum amount of power consumption. The contrast between the light emitted by the light emitting diodes and the ambient light in the immediate vicinity of the timepiece is enhanced by the use of absorption type filters, truncated pyramid type apertures in the display cover plate and a control circuit which adjusts the intensity of the output of the light emitting diodes to the ambient light conditions. Thereis further provided a series of solar cells on the face of the display, which recharge the timepiece batteries during ultra-high ambient light conditions and which supply additional power to the light emitting diodes during high ambient lighting conditions so as to increase the output of the light emitting diodes. This enhances the contrast of the diodes during high ambient lighting conditions while at the same time providing an additional source of power in parallel with that of the timepiece battery so as to increase the effective lifetime of the battery. Power distribution between the solar cells and the battery is controlled by the aforementioned control circuit. In addition, the control circuit varies the power available to the light emitting diodes such that in low ambient lighting conditions a lesser amount of power is delivered to the light emitting diodes while in high ambient lighting conditions, a larger amount of power is delivered to the diodes. In this manner the aforementioned contrast is kept constant and at that level which corresponds to the minimum level necessary for ready visibility. In addition, several structural embodiments are shown, all of which contribute to the enhancement of the light output of the light emitting diodes, the enhancement of display contrast, low power consumption, ease of fabrication, and mechanical stability of the final product.

3,757,512

WATERTIGHT PUSHER

Conrad Zellweger, Chene-Bougeries, Switzerland, assignor to Waldman Corporation, Parsippany, N.J.

Filed May 5, 1972, Ser. No. 250,789

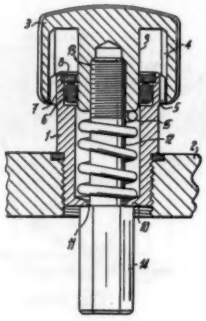
Claims priority, application Switzerland, May 24, 1971, 7528/71; June 17, 1971, 8847/71

Int. Cl. G04b *37/08*

U.S. Cl. 58—90 B **12 Claims**

A watertight pusher device for watches or the like employs a tube having means for connection to the case of a watch, a

spring mounted pusher head secured to the tube for sliding movement axially on the tube, and a screw member in threaded connection with the pusher head. The screw member has an inner head which extends out of the tube, the inner head having a diameter or dimension to provide a shoulder for engagement with the adjoining end of the tube. The pusher device is made to be useful for a range of watch cases having different wall thicknesses by providing the inner head with a



non-circular outer surface adapted for mating engagement with a tool to rotate the screw member. The inner head has a length sufficient to allow it to be shortened without the loss of a sufficient area of purchase to enable rotation of the screw member. Also, the pusher head of the device is provided with a non-circular outer surface adapted for mating engagement with a tool so that the pusher head and the tube to which it is connected may be rotated.

3,757,513

CURSOR RING FOR A WRIST WATCH

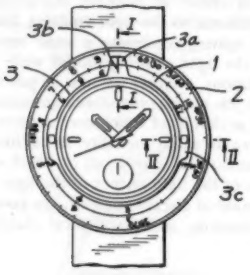
Ikuo Tokunaga, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Oct. 15, 1971, Ser. No. 189,666

Claims priority application Japan, Oct. 16, 1970, 45/102396

Int. Cl. G04b *37/12*; G06g *3/00*

U.S. Cl. 58—152 R **8 Claims**



A wrist watch having a cursor ring rotatably mounted thereon, said cursor being formed with a first laterally projecting portion having a cursor line thereon for setting scales on said watch, and a second projecting portion for manual engagement for the selective rotation and positioning of the cursor ring. A bezel having graduations on its surface may be rotatably mounted relative to a fixed graduated circle on said watch with the first projecting portion of the cursor ring in overlapping relation therewith.

3,757,514

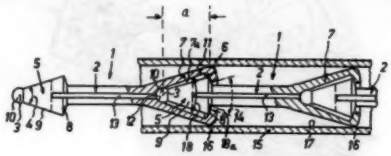
UNIVERSAL LINK CHAIN

Walter Reist, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Apr. 24, 1972, Ser. No. 246,712

Claims priority, application Switzerland, Apr. 30, 1971, 6435/71

U.S. Cl. 59—78 **12 Claims**



A universal or ball pivot-link chain composed of chain link elements, each such link element possessing at one end a swivel or ball pivot body mounted at the other end of the directly neighboring chain link element. The swivel or ball pivot body comprises two concentric spherical bearing surfaces possessing different radii of curvature, the bearing surface with the smaller radius of curvature being located forwardly of the bearing surface with the largest radius of curvature in the direction of such neighboring link element.

3,757,515

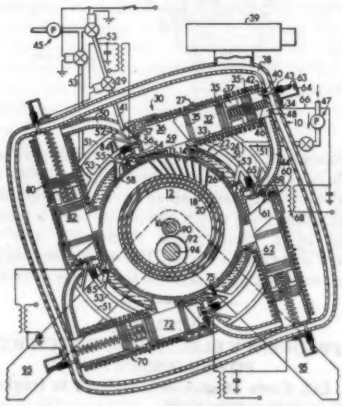
AUTOCOMBINE ENGINE

George S. Pais, 52 Harris St., Peabody, Mass.

Filed July 6, 1972, Ser. No. 269,448

Int. Cl. F02b *37/04*

U.S. Cl. 60—13 F **10 Claims**



A piston drive combustion engine is provided wherein the pistons are reciprocated by the force of combustion in combination with a helical spring. A compressed air-fuel mixture is ignited in the combustion chamber which explodes and drives a piston rearward while simultaneously expelling a blast of gases at the vanes of a turbine wheel spinning the same. The rearward stroke of the piston drives a compressed air-fuel mixture into the next succeeding combustion chamber to recommence the combustion cycle therein and provide an automatic sequence fluid piston drive turbine engine.

3,757,516

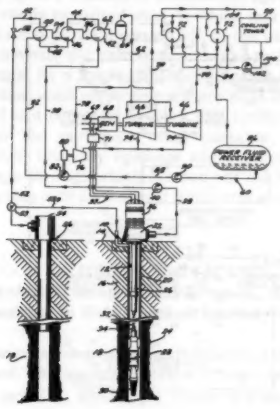
GEOTHERMAL ENERGY SYSTEM

Barkman C. McCabe, Los Angeles, Calif., assignor to Magma Energy Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 114,212, Feb. 10, 1971, abandoned. This application Sept. 14, 1971, Ser. No. 180,342

Int. Cl. F03g 7/00

U.S. Cl. 60—26 42 Claims



Method and apparatus for the nonpolluting generation of electrical power by the economic utilization of geothermal energy that is accessible through widespread sources of regenerative geothermal hot water. A well provides access to a geothermal hot water source having a temperature substantially above the flash point for atmospheric pressure, this hot water being conducted through heat exchangers wherein its heat energy is transferred to a power fluid employed in a closed Rankine heat engine cycle to generate electrical power, the water then being injected back into the aquifer. The geothermal hot water is pressurized by deep well pump means to a discharge pressure above its saturated vapor pressure for the source temperature, and a pressure gradient above the saturated vapor pressure is maintained through the heat exchangers, whereby the hot water is restrained from flashing into steam throughout its circuit, thereby avoiding any substantial temperature drop between the source and the heat exchangers and preventing release of any substantial mineral deposits at any point in the circuit. The very small expenditure of power required for such pressurization produces a large increase in total plant power output and efficiency by, among other things, (1) providing a top temperature power fluid Rankine cycle, (2) avoiding fouling of the well and surface equipment with mineral deposits, (3) deriving power from all of the geothermal fluid rather than just a stream fraction thereof, (4) allowing use of a power fluid that is particularly efficient in the available temperature range, and (5) avoiding degeneration of the power fluid source and ecological damage by returning the geothermal fluid to the aquifer.

3,757,517

POWER-GENERATING PLANT USING A COMBINED GAS- AND STEAM-TURBINE CYCLE

Georges Alfred Rigollot, 66 Avenue Henri Martin, Paris, France

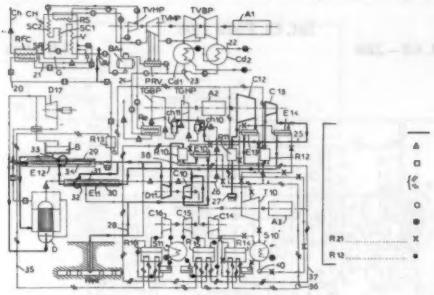
Filed Feb. 15, 1972, Ser. No. 226,553

Claims priority, application France, Feb. 16, 1971, 7105195

Int. Cl. F02c 1/04

U.S. Cl. 60—39.18 R 7 Claims

Power-generating plant using a combined gas- and steam-turbine cycle. The plant comprises a reservoir in which cold air under pressure is stored during off-peak hours for being used during peak-hours to supply, in parallel with compressors, the gas turbine of the plant. A liquefaction and distillation unit is used on the supplying air circuit with a view to supply the steam boiler with air enriched with oxygen and the gas turbine with a mixture of air and nitrogen.



3,757,518

ION ENGINE

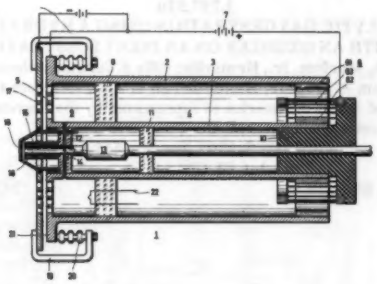
Alfred Bahr, Munich, Germany, assignor to Messerschmitt-Bolkow Blohm Gesellschaft mit beschrankter Haftung, Munich, Germany

Filed Oct. 20, 1971, Ser. No. 190,981

Claims priority, application Germany, Nov. 3, 1970, P 20 53 929.1

Int. Cl. F03h 1/00

U.S. Cl. 60—202 13 Claims



An ion engine has a propellant supply system, means, including a high frequency generator, for the ionization of the electrically neutral propellant present in gaseous form in a discharge chamber closed off by a perforated bottom, an acceleration electrode, and means for the neutralization of the accelerated ion beam. The discharge chamber forms part of a high frequency resonator with the perforated bottom closing off one end of this resonator and with the resonator generating a standing electric wave having a node at the bottom. The resonator is a $\lambda/4$ resonator, where λ is the wave length of the electric wave, and the high frequency generator is arranged inside the resonator at the end opposite the bottom. The high frequency generator preferably is a disk seal triode or a Farnsworth tube.

3,757,519

ELECTRONIC CIRCUIT ARRANGEMENT FOR CONTROLLING AN EXHAUST GAS DECONTAMINATOR

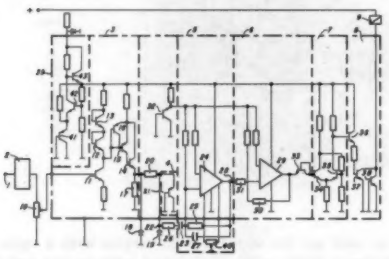
Wolfgang Kave Graewert, Wendlingen, Germany, assignor to Texas Instruments Incoporated, Dallas, Tex.

Filed Dec. 6, 1971, Ser. No. 205,182

Claims priority, application Germany, Dec. 5, 1970, P 20 59 951.3

Int. Cl. F01n *3/08*

U.S. Cl. 60—286 6 Claims



A control circuit arrangement for an exhaust gas decontaminator is provided. A voltage generating circuit produces a voltage indicative of the recurrence frequency of the ignition pulses up to a desired limit engine speed, and a differentiating stage provides from the voltage generator signal a voltage to a threshold switch indicative of the engine acceleration. The threshold voltage output signal controls operation of the exhaust gas decontaminator.

3,757,520

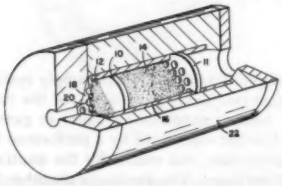
CATALYTIC GAS GENERATION USING A HYDRAZINE WITH AN OXIDIZER ON AN INERT SUBSTRATE

James A. Murfree, Jr., Huntsville; Billy J. Sandlin, Athens, and William A. Duncan, Huntsville, all of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 5, 1967, Ser. No. 651,654

Int. Cl. C06d *5/10*

U.S. Cl. 60—219 7 Claims



A gas generation scheme in which an inert porous support material, substrate or carrier, is heated sufficiently to maintain decomposition of a liquid monopropellant by a hypergolic or spontaneous exothermic reaction between the liquid monopropellant and a suitable oxidizing agent.

3,757,521

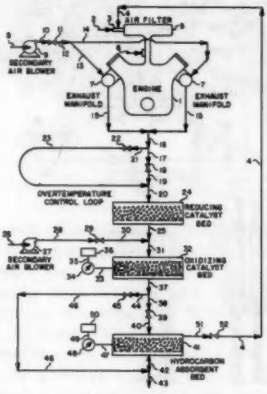
INTEGRATED ENGINE EXHAUST EMISSION CONTROL SYSTEM

John F. Tourtellotte, Westfield; John S. Negra, Plainfield; Abe Warshaw, Matawan, and John F. Villiers-Fisher, Kendall Park, all of N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Apr. 27, 1971, Ser. No. 137,830

Int. Cl. F02b *75/10*; F01n *3/14*

U.S. Cl. 60—274 20 Claims



An integrated method for controlling and preventing the emission of noxious components in engine exhaust during all the various phases of the engine operating cycle, such as startup, normal operation, overload, and when the engine exhaust gas is at an abnormally elevated temperature.

3,757,522

DEVICES FOR PRE-VAPORISING LIQUID FUEL

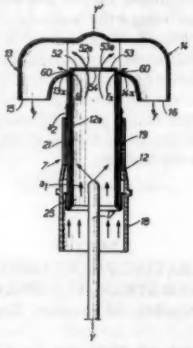
Jacques Emile Jules Caruel, Dammarie-les-Lys; Bernard Andre Cantaloube, Chennevieres; Guy Daniel Stora, Melun; Jean Robert Bedue, Creteil; Philippe Marc Denis Gastebois, Melun, and Herve Alain Quillevere, Issy-les-Moulineaux, all of France, assignors to Societe Nationale D'Etude et De Construction De Moteurs D'Aviation, Paris, France

Filed July 13, 1972, Ser. No. 271,235

Claims priority, application France, July 16, 1971, 7126107; Apr. 28, 1972, 7215409

Int. Cl. F02g *3/00*

U.S. Cl. 60—39.71 6 Claims



A device for pre-vaporising liquid fuel, designed for application for a combustion system comprising a combustion

chamber, a liquid fuel source and a source of combustion agent such as air, said pre-vaporisation device comprising, projecting into the combustion chamber, a hollow structure having a general T-shape and made up of a body which constitutes the leg of the T and is connected to said liquid fuel and combustion agent sources, and two transverse arms connected to said body of the hollow structure and terminating, in each case, in a discharge orifice which opens into the combustion chamber and through which, in operation, there escapes a flow made up of a mixture of combustion agent and fuel in an at least partially vaporised state, in which said body of the hollow structure is partially closed off, in the neighbourhood of the armpits where the transverse arms join the body of the hollow structure, by a thin-walled diaphragm in the form of two thin partitions each presenting a sharp edge disposed towards the axis of said body and towards, the similar sharp edge belonging to the particular other partition, said partitions between said mutually opposite edges defining a restricted flow passage through which the body of the hollow structure communicates with each of said transverse arms.

3,757,523

HYDRAULIC JACKS

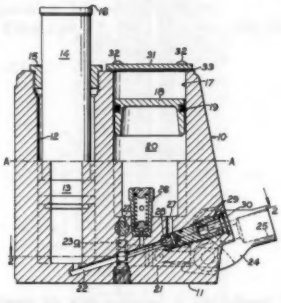
Harold Frederick Resuggan, Birmingham, Handsworth, England, assignor to Webley & Scott Limited, Birmingham, England

Continuation-in-part of Ser. No. 3,903, Jan. 19, 1970, abandoned. This application Oct. 22, 1971, Ser. No. 191,923

Claims priority, application Great Britain, Feb. 8, 1969, 6030/69

Int. Cl. F15b *15/18, 1/06*

U.S. Cl. 60—477 **10 Claims**



A general purpose hydraulic jack comprises a piston and cylinder ram, a manually operable pump, and a variable volume reservoir for hydraulic liquid defined between one end of a cylindrical chamber and a freely movable piston in low friction low inertia sliding engagement in the chamber, the other end of the chamber being vented to atmosphere to enable said volume to vary as fluid is drawn from or returned to the reservoir in response solely to pressure differentials created in the chamber by operation of the jack. Absence of an air space directly adjoining the liquid and the free piston construction of the reservoir avoids contamination of the liquid and permits the jack to be used reliably under a wide range of adverse conditions and in any operating position.

3,757,524

MULTIPLE SPEED HYDRAULIC GEAR MOTOR DRIVEN GEAR UNIT

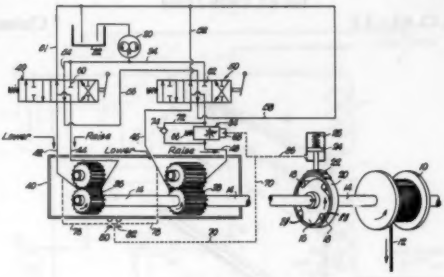
Weston R. Poyner, Kansas City, Mo.; Richard J. Stallbaumer, Lenexa, and Wade A. Eskridge, Olathe, both of Kans., assignors to A. B. Chance, Company, Centralia, Mo.

Filed Feb. 17, 1972, Ser. No. 227,054

Int. Cl. F16h *39/48, 39/52*

U.S. Cl. 60—483 **16 Claims**

A multiple-speed hydraulic drive transmission for power winches or the like which incorporates a pair of unequal, fixed displacement hydraulic motors for tandemly driving the winch at different speeds in response to delivery of motive fluid to either one or both of the motors. A single, pressure responsive fluid flow control valve in the discharge duct associated with the larger motor normally prevents exhaust flow therefrom,



and is responsive to the pressure of motive fluid presented to either or both of the hydraulic drive motors to move to a position permitting exhaust flow as long as winch speed is not excessive, so that the single control valve limits winch speed in all operational stages of the transmission.

3,757,525

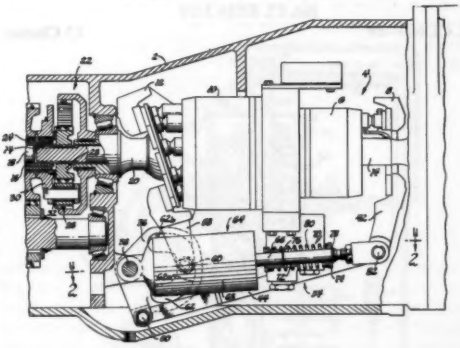
HYDROSTATIC TRANSMISSION

Allan C. Rusch, Livonia, and John Bubak, Warren, both of Mich., assignors to Massey-Ferguson, Inc., Detroit, Mich.

Filed Nov. 1, 1971, Ser. No. 194,106

Int. Cl. F16h *39/46*

U.S. Cl. 60—492 **7 Claims**



A hydrostatic transmission including a variable capacity pump controlled by an adjustable swash plate and a variable motor driven by the pump and controlled by an adjustable swash plate. Mechanical motion transmitting means connects the pump and motor swash plates for causing movement of one of the swash plates at a predetermined variable rate so that a single hydraulic piston and cylinder unit can adjust both swash plates simultaneously.

3,757,526

FLOATING BOOM STRUCTURES

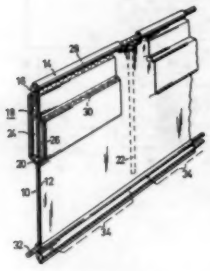
Erik Johan Larsson, Gamleby, Sweden, assignor to Barracudaverken AB, Gamleby, Sweden

Filed Oct. 30, 1972, Ser. No. 301,720

Claims priority, application Sweden, Nov. 4, 1971, 14097/71

Int. Cl. E02b *15/04*

U.S. Cl. 61—1 F **7 Claims**



An oil boom comprising an elongate screen of plastics foil material provided with buoyant bodies and weights to hold the boom in a substantially vertical position when afloat in the water, with a portion of the upper edge portion of the boom above the surface of said water. The boom comprises two superimposed sheets of plastics foil material which are welded together at a number of sequentially arranged points in the longitudinal direction of the boom to form substantially rectangular closed pockets located on the upper half of the boom in its position of use. Each pocket contains one filling body which extends the pocket to form a buoyant body of requisite buoyancy, said filling body being constructed of corrugated cardboard.

3,757,527

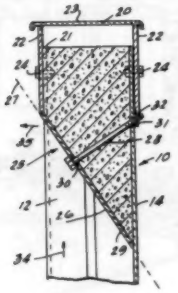
WAVE DEFLECTING DEVICE FOR A SEA WALL

Daniel Franklin Keller, Wilmette, Ill., assignor to Keller-Dee Research and Development Corp., Northbrook, Ill.

Filed Feb. 14, 1972, Ser. No. 226,053

Int. Cl. E02b *3/20*

U.S. Cl. 61—49 **13 Claims**



A wave deflecting device for use on a sea wall which has an undulating surface of vertically extending ridges and trough-like depressions characterized by a plate being disposed in each of the troughs on a plane extending between a horizontal plane and a vertical plane to block and to deflect an upward flow of water in the trough back to the body of water. Preferably the plate is used with a sea wall which is formed of sheet metal pilings which wall has a cap at the upper edge of the wall and has a filling material such as concrete disposed between the cap and the plates. In one embodiment the plate is provided with edge portions diverging from one end which conform to the diverging side walls of the trough and is provided with lateral portions along the edge portion to extend into the lateral portions of the trough. Another embodiment of the invention provides lateral extending portions at the other end to overlie portions of the adjacent ridges to deflect water that is moving upwardly along the ridges back to the body of water.

3,757,528

METHOD FOR PRODUCING A BEARING PILE OF REINFORCED CONCRETE

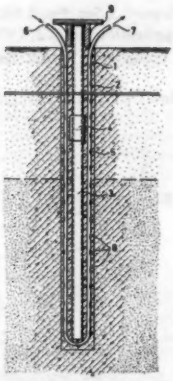
Ulrich Finsterwalder, Munich-Obermenzing; Klemens Finsterwalder, Socking near Starnberg, and Thomas F. Herbst, Munich, all of Germany, assignors to Dyckerhoff & Widmann Aktiengesellschaft, Munich, Germany

Filed Sept. 18, 1972, Ser. No. 289,879

Claims priority, application Germany, Sept. 21, 1971, P 21 47 051.9

Int. Cl. E02d *5/62, 5/80*

U.S. Cl. 61—53.62 **6 Claims**



Method for producing a bearing pile of steel reinforced concrete in a bore hole where armoring is placed in the bore hole which is filled with hardening material such as concrete and where the armoring is a steel pressure element of compact, particularly round cross-section provided with profiling on its surface to increase the adhesion between the filling material and where after setting, but prior to hardening the filling material is impregnated with cement sludge or grouting through an apertured conduit that is disposed between the steel pressure member and the wall of the bore hole.

3,757,529

WIRE AND TAPE LAYING MACHINE EMPLOYING OSCILLATORY TRENCHING BLADE AND OSCILLATORY FEED DEVICE

William C. Kaercher, Jr., Minneapolis, Minn., assignor to Jacobsen Manufacturing Company, Minneapolis, Minn.

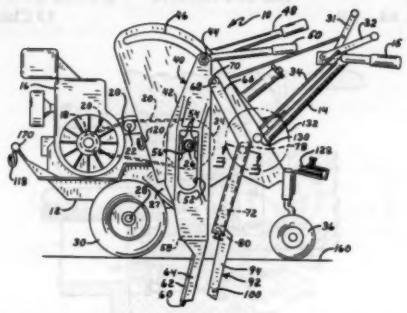
Filed Apr. 4, 1972, Ser. No. 241,000

Int. Cl. E02f *5/02*; F16l *1/00*

U.S. Cl. 61—72.6 **15 Claims**

A self-propelled machine has a pair of main arms pivotally mounted at their upper ends and eccentric means for oscillating these arms forwardly and rearwardly as the machine traverses the ground. A cross member extends between the lower ends of the arms and supports a blade having a knife edge for cutting a slit or trench in the ground so that the blade

is oscillated directly by the main arms and through the same angle as these arms. A pair of auxiliary arms are oscillated at a lesser amplitude than the main arms, the auxiliary arms also having a cross member extending between the lower ends



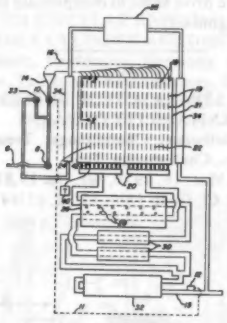
thereof. The last-mentioned cross member supports a feed device. In one form, the device feeds a flexible wire to be embedded in the ground. In a somewhat modified form, the device feeds a flexible tape.

3,757,530

COOLING SYSTEM FOR DATA PROCESSING APPARATUS

Michael A. Doyle, Blaine; Roger W. Cree, Stillwater, and Richard C. Keller, St. Paul, all of Minn., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Apr. 12, 1972, Ser. No. 243,141
Int. Cl. F25b *5/00*
U.S. Cl. 62—117 **4 Claims**



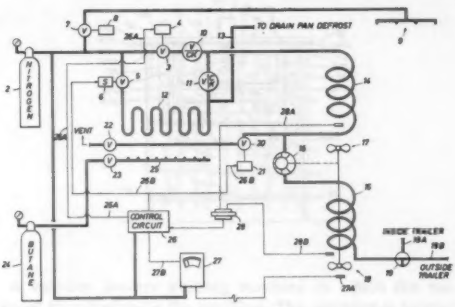
A refrigeration system is provided for an electronic computer in which a plurality of parallel refrigeration lines are derived from a single source of liquified refrigerant and in which each of the parallel refrigeration lines passes through a plurality of cold plates over which the computer logic modules are adapted to fit. Partially gaseous and partially liquid refrigerant is recombined from the parallel refrigeration lines at a manifold and passes through additional elements of the computer assembly, such as power supply devices, where it becomes superheated and is returned to the source of refrigerant. Refrigerant flow in the individual parallel channels need not be exactly balanced, but a rough balance of refrigerant flow may be obtained by providing additional heat to a parallel channel having adequate cooling reserve capacity, as measured by liquid refrigerant flow in its output, so as to increase the cooling load on the entire system thereby causing increased refrigerant flow through a channel having insufficient cooling capacity as measured by low volume or no volume of liquified refrigerant in its output.

3,757,531

REFRIGERATION APPARATUS EMPLOYING LIQUIFIED GAS

Paul M. Gement, Jr., P.O. Box 10593, 4 Knox Rd., New Orleans, La.

Filed July 9, 1971, Ser. No. 161,258
Int. Cl. F25d *21/06*
U.S. Cl. 62—156 **16 Claims**



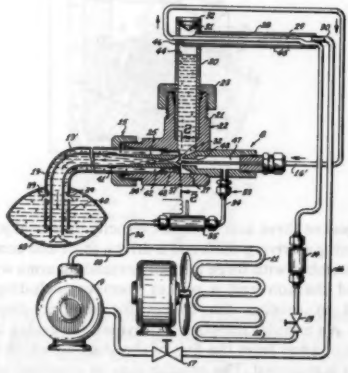
Refrigeration apparatus is provided which is motivated by the vaporization of liquefied nitrogen or the like. In particular, nitrogen vapor is introduced into a primary heat exchange coil at a high vapor pressure, conducted from the primary coil at a lower pressure through a pneumatic motor, and thereafter through a secondary heat exchange coil from which it is vented. The pressure drops across the two coils will chill the coils, and blowers are driven by the motor to circulate the atmosphere to be cooled over the coils. Defrosting means is included for automatically re-routing the liquefied nitrogen intake stream through a heater whenever ice accumulates on the coils in an excessive amount or ambient temperature drops below the temperature sought to be maintained.

3,757,532

REFRIGERANT METERING SYSTEM

Paul H. Brandt, 5202 E. Flower St., Phoenix, Ariz.

Filed July 28, 1971, Ser. No. 166,748
Int. Cl. F25b *47/00*
U.S. Cl. 62—278 **3 Claims**

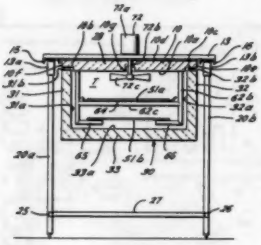


An improved injector type refrigerant metering device for use in place of standard thermostatic or automatic expansion valves, high or low side floats, capillary tube metering devices or any other conventional method of metering liquid refrigerant from the high side to the low side of a compression type refrigeration system.

3,757,533
CRYOGENIC FREEZER UNIT

James T. Kent, 730 Post Oak, Houston, Tex.

Filed Feb. 14, 1972, Ser. No. 225,949
Int. Cl. F28g 15/08
U.S. Cl. 62—303 12 Claims

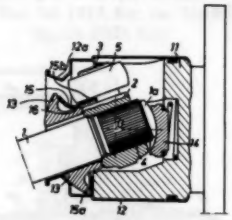


A tunnel-type cryogenic freezing unit for freezing articles such as food which includes first and second housing sections which form a tunnel through which a conveyor moves the food, exposing means to move the second housing section away from the first housing section to expose the inside of the unit for ease in cleaning or otherwise maintaining the unit, and a accumulator means to collect any unused sprayed cryogenic liquid so that the food is again subjected to the freezing action of the liquid.

3,757,534
UNIVERSAL JOINTS

Michel Orain, Conflans Saint-Honorine, France, assignor to Societe Anonyme: Glaenzer Spicer, Poissy, France

Filed Mar. 13, 1972, Ser. No. 234,218
Claims priority, application France, Apr. 6, 1971, 7112160
Int. Cl. F16d 3/06
U.S. Cl. 64—8 3 Claims

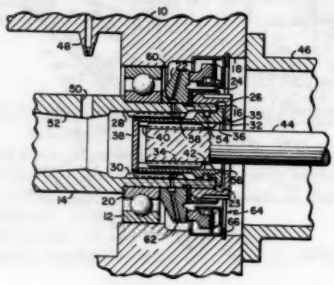


A tripod or three arm constant velocity universal joint of the type joining a driving shaft and a driven shaft and comprising a tripod member with three laterally extending arms with rollers mounted thereon and a socket member including grooves adapted to receive the rollers for relative displacement therein. An annular member is provided for urging the rollers towards or away from the axis of the shaft on which the tripod member is mounted. The annular may be provided on one side or both of the axes of the rollers along the longitudinal axis of the shaft on which the tripod member is mounted. The annular member preferably engages the lateral surface of each of the rollers perpendicular to the axis thereof and facing the shaft, that is, nearest to the shaft. The annular member is not fixed to the tripod member nor to a retaining member which may be provided and which is fixed relative to the tripod member.

3,757,535
DRIVE ASSEMBLY WITH COMPENSATION FOR MISALIGNMENT

Wolfgang J. Stein, Milford, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Nov. 3, 1971, Ser. No. 195,206
Int. Cl. F16d 3/46
U.S. Cl. 64—9 R 13 Claims

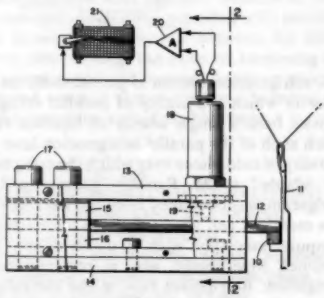


A drive shaft has a bore formed at its outer facing end. An annular adapter element has a series of external splines which interfit with internal splines in the bore of the drive shaft. The adapter element has a bore with internal splines that interfit with external splines on a driven shaft received in the adapter bore. The internal splines between the drive shaft and the external splines on the adapter element are lubricated so that the adapter element rocks preferentially relative to the drive shaft to compensate for angular misalignment. The adapter element is retained relative to the drive shaft and a seal is provided between them so that the driven shaft may be removed without exposing the lubrication system for the spline. In another form an elongated tubular element is placed between the adapter and the drive shaft to compensate for both parallel and angular misalignment.

3,757,536
METHOD AND APPARATUS FOR DETERMINING THE KNITABILITY OF YARNS

Jefferson Lyle Claiborne, Chattanooga, Tenn., assignor to Dixie Yarns, Inc., Chattanooga, Tenn.

Filed Mar. 16, 1970, Ser. No. 19,819
Int. Cl. D04b 1/00, 15/32, 15/44
U.S. Cl. 66—1 R 4 Claims

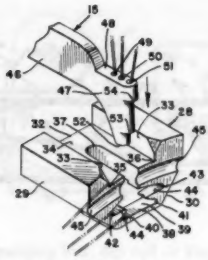


This invention mounts the stitch cam of a tubular knitting machine on a tongue and measures the strain of the tongue as a function of the load imposed on the stitch cam by the yarn coming into the machine to be knit. Tension of the yarn running to the machine is controlled and monitored.

3,757,537
KNITTING MACHINE

Orin R. York, 404 Royal Oak Ave., High Point, N.C.

Filed Feb. 23, 1971, Ser. No. 118,024
Int. Cl. D04b 9/12, 9/18, 9/06, 15/58
U.S. Cl. 66—9 R 9 Claims

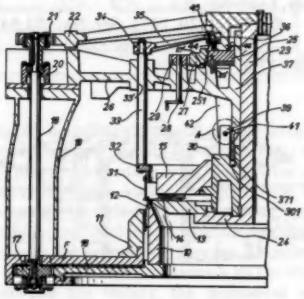


A cylindrical knitting machine having a dial and cap for rib knitting, the machine being provided with means for feeding three yarns simultaneously to the cylinder needles in plating relation, which means includes a throat plate having three vertically spaced feed ledges with notches at the sides, the ledges being symmetrical about the central vertical plane of the throat plate. The throat plate is centrally slotted to allow the entrance of a yarn finger having three yarn guides with outlets at three vertically spaced levels to position a yarn outlet just above each of the ledges of the throat plate. The machine will plain knit the three yarns in plated relation, or with one of the outer yarns forming terry loops.

3,757,538
MULTI-SYSTEM CIRCULAR KNITTING MACHINE WITH NEEDLE CYLINDER AND DISC PLATE

Johann Martinetz, Hechingen, Germany, assignor to Firma Meyer & Cie, Taiflingen/Wuerttemberg, Germany

Filed Aug. 14, 1970, Ser. No. 63,826
Int. Cl. D04b 9/06, 15/54
U.S. Cl. 66—19 5 Claims

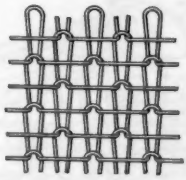


A multi-system circular knitting machine with a needle cylinder and a disc plate, the cylinder and plate being adjustable toward and away from each other. The disc plate acts as a needle holder, there being a common supporting ring for the threaded guides of all knitting systems. The common supporting ring is connected to the upper part of the device so that it is shifted when the disc plate and the connected disc plate cam holder are shifted relative to the needle cylinder, but remains unchanged relative to the needle cylinder when the retarded sinking of the disc plate cam holder toward the cylinder cam holder is carried out.

3,757,539
STOCKING WITH TWO PLY TOE

John J. Millar, Laconia, N.H., assignor to Scott & Williams Inc., Laconia, N.H.

Division of Ser. No. 752,937, Aug. 15, 1968, Pat. No. 3,685,321. This application Dec. 17, 1970, Ser. No. 99,157
Int. Cl. D04b 9/54, 9/56
U.S. Cl. 66—173 3 Claims

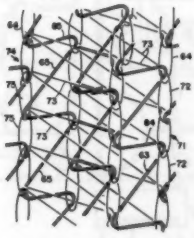


A circular hosiery knitting machine in which the toe is closed by twisting on the machine. The stocking is knitted in the normal direction, starting with an inturned double welt in the usual manner. Going into the toe, heavier yarns are introduced with circular knitting using two feeds, and loops are transferred onto the dial jack and held during subsequent knitting of the toe, with the needles alternately knitting and welting during knitting of the toe portion. At the completion of the toe knitting, the dial is allowed to rotate one revolution with respect to the body to introduce a twist between the dial loops and the needles. After the twisting has been done, the loops are transferred onto the needles and knitted in, after which additional fabric courses defining a tab are knitted with an anti-ravel structure, and the stocking is pressed off.

3,757,540
DOUBLE FACED WARP KNIT FABRIC AND APPARATUS AND METHOD FOR MAKING SAME

George E. Jackson, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 30, 1970, Ser. No. 102,628
Int. Cl. D04b 23/08
U.S. Cl. 66—192 7 Claims



A double faced warp knit fabric is made on a double needle bar warp knitting machine having a common guide bar and common chain stitch thread forming chain stitches on one needle bar and then on the other needle bar in each successive course of each pair of opposite wales of each opposite face to bind and unite the two knit structures into a unitary double faced fabric. The common chain stitch thread may also be looped coursewise around adjacent chain stitches in adjacent wales to not only serve as the body yarn for both faces but to also serve as the weft portions of a simulated weave, in cooperation with a pair of inlaid warp yarns in each knit structure.

3,757,541

STRINGER FOUNDATION FOR SLIDE FASTENER

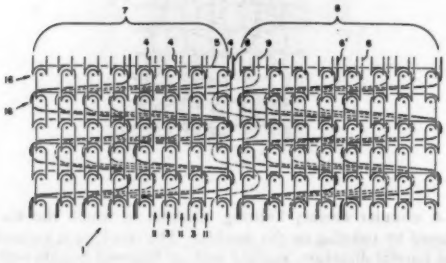
Alfons Frohlich; Marie-Luise Cappel, both of Essen, and Ernst Stubiger, Giessen, all of Germany, assignors to Optic-Holding A.G., Glarus/Schweiz, Germany

Filed Oct. 20, 1970, Ser. No. 82,323

Claims priority, application Germany, Apr. 4, 1970, P 20 16 139.1

Int. Cl. D04b 23/12, 21/16; A44b 19/00

U.S. Cl. 66—193 5 Claims



A stringer foundation for a slide fastener has a pair of parallel tapes which have been simultaneously formed on a warp-knitting machine with a connecting filament joining their confronting edges. Each tape is formed by a plurality of warp chains laterally interconnected by laid-in weft filaments which span at least three of the wales formed by the chains. The connecting filament can be tensioned tighter than either the warp or weft filaments to form openings adjacent the edge wale. The connecting filament is adapted to be removed after mounting of the coupling elements.

3,757,542

FLOAT VALVE FOR DRY WASHING MACHINES

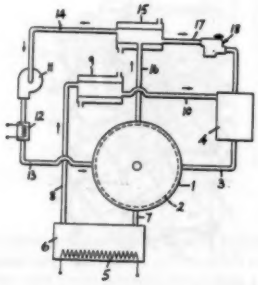
Poerio Carpigiani, Anzola Emilia, Bologna, Italy

Filed Nov. 19, 1971, Ser. No. 200,340

Claims priority, application Italy, Nov. 28, 1970, 13059 A/70

Int. Cl. D06f 33/02, 43/08

U.S. Cl. 68—12 R 2 Claims



A program controlled dry cleaning machine employing low boiling point solvents, and comprising a cleaning chamber, a solvent feeding tank, a soiled solvent still connected to a first solvent vapor condenser, a drying circuit comprising means for circulating hot air through the cleaning chamber and through a second solvent vapor condenser, the said vapor condensers being connected to the solvent feeding tank. The switching from one step to the following of the washing program is controlled on a time basis. A flowmeter is provided for sensing the flow of the solvent from said second condenser to the feeding tank, for controlling the duration of the drying step as a function of said flow.

3,757,543

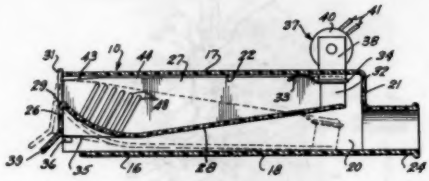
COMBINATION DETERGENT DISPENSER AND MANUAL FILTER

Albert T. Braga, Stevensville, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 30, 1971, Ser. No. 175,959

Int. Cl. D06f 39/02, 39/10

U.S. Cl. 68—17 R 10 Claims



A dispensing device adapted for use in a washing machine having a liquid circulation system for selectively dispensing a washing agent into the liquid of the circulation system. The dispensing device includes a housing which is connected in the circulation system of the washing machine and which preferably acts as a discharge for circulating the liquid back to the tub of the machine. A tray for holding the laundry agent or additive is removably received in the housing and is movable between a bypass position withdrawn from the flow of the circulating liquid and a dispensing position with the tray in the path of the circulating liquid to flush the agent contained therein into the machine. When inserted in the device, the tray is held by a permanent magnet in the bypass position until an electromagnetic force overcomes the magnetic forces of a permanet magnet to release the tray and enable a spring to bias the tray to the dispensing position. In one embodiment of the invention, the tray includes a filtering means comprising upstanding fingers to filter the washing liquid as it is passing across the tray to be discharged into the washing machine.

3,757,544

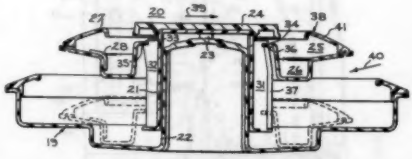
CENTRIFUGALLY RESPONSIVE DISPENSER FOR WASHING MACHINE

Eugene G. Olthuis, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Sept. 20, 1971, Ser. No. 181,947

Int. Cl. D06f 39/02

U.S. Cl. 68—17 A 7 Claims



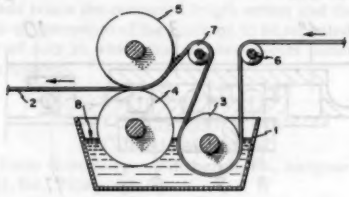
An agitator mounted dispenser of detergent or the like for a recirculation type automatic washing machine. A slightly unbalanced detergent compartment is held out of the flow of recirculating water by a support having mating ramp surfaces between the detergent compartment and the agitator mount. The ramp incline extends upwardly and outwardly in a radial direction from the agitator. During agitation, the centripetal force of the ramp holds the compartment on the support but during high speed rotation the centrifugal forces on the unbalanced compartment cause the compartment to ride up over the ramp support and drop down into the path of the recirculating water flow.

3,757,545

PADDING APPARATUS WITH ANTI-FLOWBACK GUIDE

Campbell P. Laney, Jr., Cheraw; William Thomas White, Patrick, and Harry L. Mercer, Cheraw, both of S.C., assignors to J. P. Stevens & Co. Inc., New York, N.Y.

Filed Oct. 19, 1971, Ser. No. 190,493
Int. Cl. B05c *3/178, 3/18*
U.S. Cl. 68—43 5 Claims



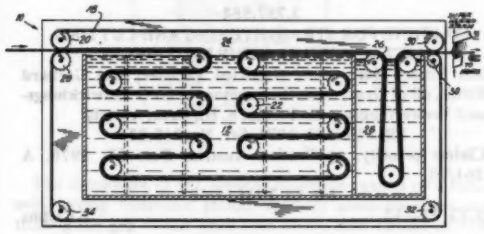
A padder with padding box, dip roll or kiss roll and padder rolls is provided with an additional roll over which the fabric moves and which is located above the nip of the padder rolls so that the fabric slopes down to the nip. This prevents pad liquor which accumulates as a pool just before the nip of the padder rolls from running down the fabric, which can cause off-shading, color variations and the like. The position of the anti-flowback roll is not critical and it can cause fabric to lead down to the padder roll nip through angles varying from 1° to as much as 355°, with 30° to 45° being a preferable range.

3,757,546

COMMERCIAL LAUNDERING APPARATUS

Abe D. Ross, 9275 A-Burton Way, Los Angeles, Calif.

Filed Nov. 10, 1971, Ser. No. 197,725
Int. Cl. B05c *3/132*; D06f *15/00, 39/00*
U.S. Cl. 68—44 15 Claims



In commercial laundering apparatus, an article to be cleaned is carried between a pair of flexible belts which are trained over a plurality of rollers with the articles carried by the belts passing through a washing solution held in a tank. Movement means are provided in the laundering apparatus to provide a brushing and flushing motion for the article to be cleaned to enhance the laundering process. These movement means cause the belts to move transverse to the direction of movement between the rollers, the transverse movement being both perpendicular to the plane formed by the belts and coplanar therewith.

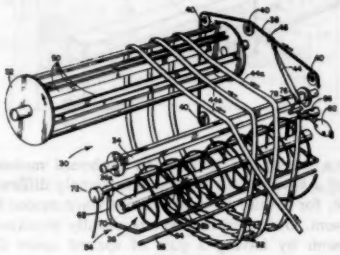
3,757,547

KNOCK-OFF DEVICE

John Orlick, Athol, Mass., assignor to Rodney Hunt Company, Orange, Mass.

Filed June 12, 1972, Ser. No. 261,981
Int. Cl. D06f *43/08*; G11b *15/28*
U.S. Cl. 68—176 6 Claims

This disclosure relates generally to equipment for subjecting fabric in rope or strand form to a liquid treatment, wherein a rotating helical guide is employed as part of a motor driven transport system to carry the fabric through a bath of treatment liquid while maintaining the fabric in a helical arrangement of spaced convolutions. The disclosure embraces a knock-off device for protecting the helical guide from damage that might otherwise be caused by knots, tangles or tautness in the fabric. The knock-off device preferably includes a pair of



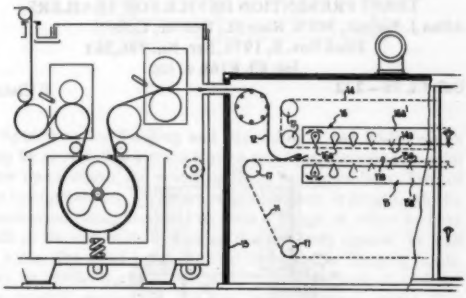
laterally spaced elongated guide members between which the fabric is passed before passing over the helical guide. A knot, tangle, or tautness in the fabric will cause one of the guide members to be pivotally displaced. A switch is actuated in response to pivotal displacement of said one guide member to interrupt operation of the motor driven transport system until such time as the knot, tangle or tautness has been eliminated.

3,757,548

TEXTILE TREATMENT APPARATUS

Robert Alan Collinge, Rochdale, England, assignor to F. Smith & Company (Whitworth) Limited, Whitworth, Rockdale, Lancashire, England

Filed Apr. 24, 1972, Ser. No. 246,937
Claims priority, application Great Britain, Feb. 18, 1972, 7,751/72
Int. Cl. B05c *9/04*
U.S. Cl. 68—205 R 7 Claims



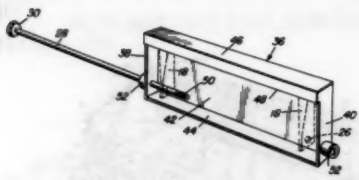
Apparatus for treating textile fabric in knitted or woven form for effecting relaxation thereof. An openwork conveyor structure supports and conveys the fabric under treatment. An abutment means of openwork construction is arranged in spaced opposed disposition relative to the conveyor structure. First and second treatment medium feed means are arranged in opposed disposition and are adapted to apply a treatment medium to the fabric. There is relative movement between the first and second treatment medium feed means in the feed direction of the conveyor structure to provide, at least periodically, oppositely directed displacement to the fabric at successive locations in the feed direction.

3,757,549

OUTBOARD MOTOR CLAMP SCREW LOCK

Carson Mullis, Jr., 2071 SW 68th Way, Miramar, Fla.

Filed Apr. 28, 1972, Ser. No. 248,435
Int. Cl. G05b 73/00; G05g 5/00; F16b 41/00
U.S. Cl. 70—232 7 Claims



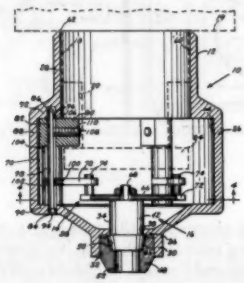
This is a device for locking an outboard motor on the transom of a boat so as to make it extremely difficult, if not impossible, for a thief to steal the outboard motor from the boat transom. Outboard motors are usually mounted on the boat transom by having a pair of spaced apart C-clamps secured over the transom. With this device, an elongated housing consisting of a tough metal strong box, partly open in its real wall, is hung over the clamping screw handles, the handles having alignable transverse apertures therethrough, and a tough metal bolt is extended through apertures in the confronting and side walls of the strong box and through the aligned apertures in the clamp screw handle ends. A tough metal lock nut is threaded on at least one end of the bolt, a key being needed and used to unlock the nut before it can be unthreaded. The nut is of the same type that is used for locking demountable automobile wheels on their hubs to prevent theft thereof. The tough metal of the bolt and nut, and also the strong box, is such as is used in the metal walls of a safe or vault. To increase the security, the bolt head and the lock nut may also be countersunk within a guard ring extending externally of the confronting end walls or, for maximum security, a guard thimble is countersunk with the confronting end walls, thus making it impossible to get access thereto with a bolt cutter or hacksaw or other burgler tool.

3,757,550

THEFT PREVENTION DEVICE FOR TRAILERS

Allan J. Kayser, 345 S. Race St., Denver, Colo.

Filed Nov. 8, 1971, Ser. No. 196,561
Int. Cl. F16b 41/00
U.S. Cl. 70—232 8 Claims



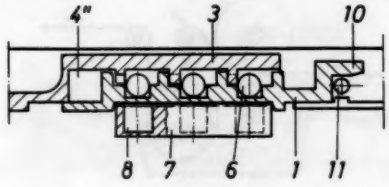
A theft prevention device adapted to be locked onto the coupling pin of a trailer to prevent theft of the trailer includes a housing adapted to fit over the coupling pin and a control mechanism within the housing which is activated to positively secure and lock the device on the coupling pin by locking members pivotal into a recessed portion on the coupling pin.

3,757,551

MAGNETIC LOCK WITH RELATIVELY SLIDABLE ELEMENTS

Horst Willach, Ruppichteroth/Bezirk Koln, Germany, assignor to Humwil-Werke Hugo Willach & Sohne, Koln, Germany

Filed Oct. 4, 1971, Ser. No. 186,035
Claims priority, application Germany, Nov. 12, 1970, P 20 55 550.4
Int. Cl. E05b 47/00
U.S. Cl. 70—276 24 Claims



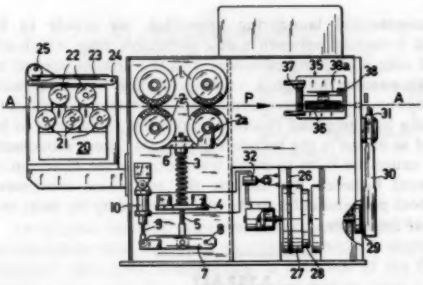
A first plate-like body has a predetermined number of chambers formed therein, of predetermined shape and location within the body; a second, plate-like body, relatively slidable with respect to the first is formed with chambers, the outlines of which, at least in part, match the chambers of the first body, and which further includes an additional chamber, and intercommunicating channels. Locking elements of magnetically responsive material, such as small balls, cylinders or the like are placed in the chambers to span both chambers. Upon application of a key having predetermined locations of zones of magnetization, the locking elements will assume the position in the chambers of the magnetization zones of the key. At those locations, one of the chambers is formed with interconnecting channels, permitting the locking elements to slide from one chamber into the next, and thus permit sliding movement of the plate-like bodies with respect to each other.

3,757,552

MACHINE FOR STRAIGHTENING AND CUTTING METAL WIRE OR STRIP INTO PIECES

Klaus Ritter; Hans Gott; Gottfried Zechner, and Gerhard Ritter, all of Graz, Austria, assignors to EVG Entwicklungs- und Verwertungsgesellschaft m. b. H., Graz, Austria

Filed Dec. 22, 1971, Ser. No. 210,824
Claims priority, application Austria, Dec. 22, 1970, A 11561/70
Int. Cl. B21f 11/00
U.S. Cl. 72—12 6 Claims



A machine for straightening and cutting material in the form of metal wire or strip into lengths comprising a straightening device, a conveyor for conveying the material through the machine and a shearing device for cutting off lengths of the material. In this machine a measured length sen-

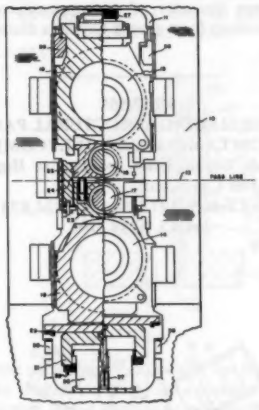
sor for measuring the lengths of the material conveyed through the machine and an adjustable required length transmitter for controlling the length of material to be cut off are both connected to a comparison circuit which, as soon as the length sensed by the measured length sensor is equal to that to which the required length transmitter is adjusted brings the material to a standstill and operates the shearing device to cut off a length of the material. The machine is also provided with adjustable number-of-cuts counter which, after each cut has been made resets the measured length sensor and thus causes the cycle of operations of the machine to be repeated until the number of cuts to which the number-of-cuts counter is adjusted is reached.

3,757,553

HYDRAULIC MILLS

Joseph Irwin Greenberger, Pittsburgh, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.

Filed Aug. 13, 1971, Ser. No. 171,672
Int. Cl. B21b *37/00*
U.S. Cl. 72—21 **2 Claims**



The disclosure of the present invention relates to a rolling mill having hydraulic piston cylinder assemblies for controlling the gap of the work rolls of the mill. Linear INDUCTOSYNS (the term INDUCTOSYN being a registered United States trademark of the INDUCTOSYN CORPORATION) are arranged in openings provided in the pistons of the piston-cylinder assemblies for measuring accurately the relative movement of the pistons and cylinders as a function of changes in the roll gap caused by rolling variations. Because of the inherent capabilities of INDUCTOSYNS, they require no additional adjustment features, even though relatively large adjustments are required to maintain a fixed mill passline.

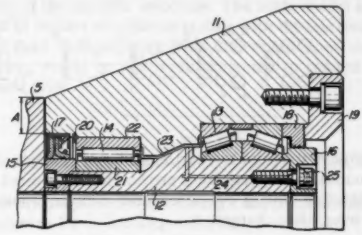
3,757,554

SECTIONAL FORMING ROLL HAVING IMPROVED STRENGTH AND STABILITY

Kaneaki Kida, Yasugi, and Kazuyoshi Ida, Yonago, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed June 8, 1971, Ser. No. 151,060
Claims priority, application Japan, Sept. 4, 1970, 45/77077
Int. Cl. B21b *27/08*
U.S. Cl. 72—43 **9 Claims**

Either one or both of an upper roll and a lower roll for cooperatively forming a ribbon of sheet metal into a desired form is divided into a plurality of driving sections and idling sections and a needle roller bearing is used for one of the two sets of bearings provided on a sleeve of each idling section fixedly mounted on a driving shaft, and further a labyrinth



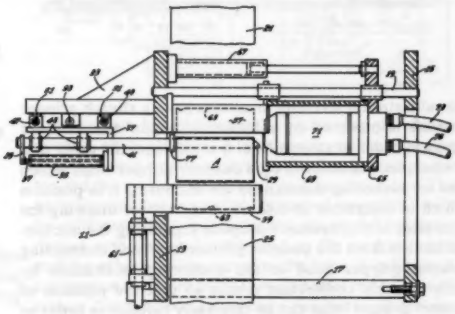
packing is used for one of two sets of oil seals, whereby a forming roll, well lubricated and having improved strength and stability can be obtained.

3,757,555

CAN BODY EXPANDING AND FLANGING APPARATUS

John Robert Blutt, Melrose, and Andrew Cecil Harvey, Boston, both of Mass., assignors to Vermont Marble Company, Proctor, Vt.

Filed Jan. 14, 1972, Ser. No. 217,874
Int. Cl. B21d *22/12*
U.S. Cl. 72—63 **18 Claims**



Apparatus for flanging and expanding a can body, which may be provided in a multi-station machine, including an axial core upon which are mounted three boot members. Two of the boot members, which are relatively short in length, may be pressurized simultaneously to form a flange at either or both ends of the can body by forcing the can body against the wall of a die. The third boot, situated between the flanging boots, may be similarly expanded by hydraulic pressure to reshape the central portion of the can body between necks thus formed intermediate the flanges and the central portion.

3,757,556

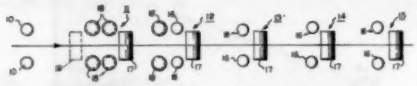
METHOD OF ROUGHING SLAB TO PREDETERMINED WIDTH AND APPARATUS THEREOF

Takaho Kawawa, Meguro-ku, Tokyo; Masamoto Kamata; Takishi Hirasawa, both of Kawasaki-shi, Kanagawa-ken, and Yoshisuke Ikegami, Meguro-ku, Tokyo, all of Japan, assignors to Nippon Kokan Kabushihi Kaisha, Tokyo, Japan

Filed Mar. 31, 1971, Ser. No. 129,777
Int. Cl. B21b *13/08*
U.S. Cl. 72—234 **12 Claims**

When roughing a continuously cast slab in a continuous hot rolling stand, the invention breaks down the width of the slab, having passed through a vertical scale breaker, by means of

rolls having at least a pair of pressing calibers and thereafter the width of the slab is rolled by means of vertical rolls whereby the width of the slab is rolled more accurately than



was possible in the prior art, and accordingly changes of molds of continuous casting machines are no longer required during the continuous casting operation and such an operation is possible over many charges.

3,757,557

HYDRAULIC STRETCH LEVELLING MACHINE

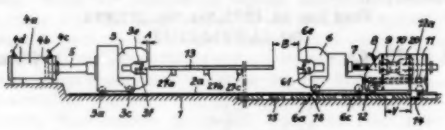
Erwin Kost, Dahlienpfad 10, Osterath, Germany

Filed Apr. 6, 1972, Ser. No. 241,625

Claims priority, application Germany, Apr. 7, 1971, P 21 17 104.0

Int. Cl. B21d *11/04*

U.S. Cl. 72—311 **10 Claims**



Hydraulic stretch levelling machines have a stretch gripper head which is powered by a hydraulic piston and cylinder drive unit in order to stretch level a workpiece; the other end of the workpiece is secured by a counter gripper head which includes an anchoring mechanism for anchoring it in position and which is adjustable at discrete intervals for allowing for different sizes of workpiece. I propose separating the anchoring mechanism from the counter gripper head and connecting the counter gripper head to the anchoring mechanism by steplessly variable connecting means so that the position of the counter gripper head can be steplessly variable in order to allow for different lengths of workpiece and in order to bring the workpiece properly between the jaws of the gripper head, without using the hydraulic piston and cylinder drive unit for this purpose.

3,757,558

APPARATUS FOR NECKING-IN TUBULAR MEMBERS

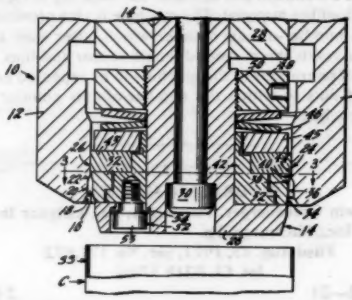
Carl William Heinle, Pompano Beach, Fla., assignor to American Can Company, Greenwich, Conn.

Division of Ser. No. 231,207, March 2, 1972. This application Jan. 16, 1973, Ser. No. 324,115

Int. Cl. B21d *19/06*

U.S. Cl. 72—354 **10 Claims**

Method and die assembly for necking-in tubular members wherein the die assembly comprises an outer reducing die and an inner die pilot comprised of a T-shaped holder on which is mounted a pilot ring that floats radially on an also mounted spring biased axially floating retaining ring means. The reducing die has a recessed inwardly angled directing surface on the wall of its inner chamber, and the pilot ring has a wide diameter circumferential step surface and two supporting surfaces of lesser diameter. A clearance is provided between the pilot ring supporting surfaces and the outer reducing die. The outer reducing die is brought into telescoping engagement with the marginal edge portion of the wall of a tubular member. This causes the reducing die directing surface to direct the marginal edge portion inwardly against the pilot ring step whereby the edge portion is directed into a groove formed by the pilot ring, the outer reducing die and a control surface which transversely engages the edge of the wall and controls its axial movement in relation to the die assembly. In the groove, the marginal edge portion is formed into a rim of reduced diameter. As the outer reducing die continues to move axially over the tubular wall, the directing surface directs the flow of tubular wall material into the aforementioned clearance and toward the lesser diameter pilot ring surfaces against and along which it rests to form a neck having a diameter less than that of the rim.



3,757,559

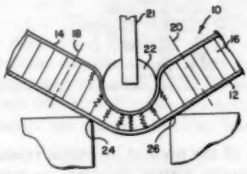
METHOD FOR MAKING STRUCTURAL PANEL BENT FROM LAMINATED HONEYCOMB

James W. Welsh, Logan, Utah, assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 9, 1972, Ser. No. 224,835

Int. Cl. B21d *5/00*

U.S. Cl. 72—379 **1 Claim**



A method is disclosed whereby a sandwich composite panel of other than flat configuration is bent from a flat panel by employing a brake-forming operation. The corners of the bent structural panel are shaped so that the inner and outer skins have substantially the same surface length in the bent panel as in the flat sheet. Thus, the sandwich laminate on either side of the bend is undeformed. The method comprises bending the inner lamination skin to a smaller radius and a longer arc than the outer skin. In the resultant bent structural panel, the surface length of each of the inner and outer skins is substantially the same and is substantially the same as before the bend.

3,757,560

BENDING DEVICE

Paul Hargash, Saginaw, Mich., assignor to The Dow Chemical Company, Midland, Mich.

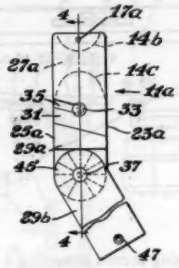
Filed Dec. 2, 1970, Ser. No. 94,408

Int. Cl. B21j *13/08*

U.S. Cl. 72—458 **10 Claims**

A device and method is described for bending an elongated article which comprises an elongated body having a transverse passage therein. Two convex wall sections within the body act

as defining elements of the passage. An article is positioned within the passage and formed by altering the angle between the major axes of the body and article by rotating the body



and/or article in a plane operatively parallel with the two axes. This device is especially useful when the article to be formed, such as tubing, is attached in a confined location.

3,757,561

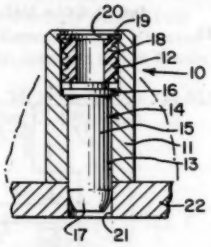
CARTRIDGE LOCATOR

Ronald E. Rupert, 231 N. College St., Palmyra, Pa.

Filed June 8, 1971, Ser. No. 150,998

Int. Cl. B21d *11/22*

U.S. Cl. 72—461 **2 Claims**



A precision cartridge stock locator for use in stamping dies and the like includes a bushing, a headed pilot pin slidable within a bearing in the bushing, a polyurethane spring acting on the head of the pin, and a retainer for the spring.

3,757,562

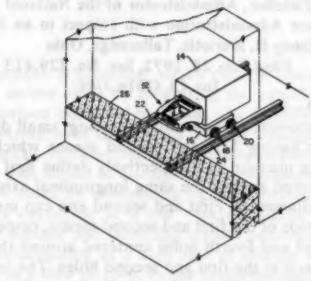
METHOD OF IMPACT TESTING A METALLIC STRUCTURE

Gerald L. Goldberg, and Henry W. Wessells, III, Phila., Pa., assignors to The Budd Company, Philadelphia, Pa.

Filed Oct. 20, 1971, Ser. No. 190,993

Int. Cl. G01n *3/30*

U.S. Cl. 73—12 **5 Claims**



A method of testing a metallic structure comprises the steps of providing data relating to the structure, which may be data from a drawing or other source. A scale model of the metallic structure is then made of the metallic structure. The scale model is made of superplastic material having a stress-strain characteristic which is related to the stress-strain characteristic of the metallic structure. The scale model is then subjected to impact or collision testing with the test data acquired being used to determine what the reaction of the metallic structure would be if it were subjected to related impact or collision tests.

3,757,563

MEASUREMENT PNEUMATICALLY OF THICKNESSES OF COATINGS

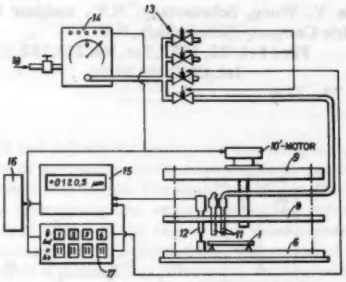
Gunther Kampf, and Hans-Georg Volz, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 18, 1971, Ser. No. 125,662

Claims priority, application Germany, Mar. 24, 1970, P 20 14 071.0

Int. Cl. G01b *13/02*

U.S. Cl. 73—37.5 **9 Claims**



Apparatus for pneumatically measuring the thickness of a coating on a support. A pneumatic measurement nozzle is mounted on a nozzle-carrying plate for directing a gas stream toward the support which rests on a base member. The nozzle-carrying member is movably mounted on guides. An absolutely calibrated fine measurement sensor is mounted on the device with one end connected to the nozzle-carrying plate and the other end connected to the base. A calibrated indicating instrument is operatively mounted in the pneumatic supply system for indicating discharge resistance at the nozzle and thereby indicating the elevation of the nozzle-carrying member relative to the base. For the measurement, a partially coated support can be placed on the base with an uncoated portion of the support beneath the nozzle. The nozzle can be moved to a selected elevation as a first position, and the elevation of that position can be read with the fine measurement sensor and the value stored in a computer, and the reading on said calibrated indicating instrument for said elevation can be noted. The support can then be moved so that a coated portion thereof is beneath the nozzle, and the nozzle can then be moved to a second position to provide the same reading on the calibrated indicating instrument. The elevation of the nozzle at said second position can be read with the fine measurement sensor and the measurement value fed to the computer, and the film thickness can then be determined by comparing the readings of the fine measurement sensor.

3,757,564

CIGARETTE INSPECTION

Camille R. Blackburn, Willowdale, Ontario, and Jurgen F. Schmelzer, Downsview, Ontario, both of Canada, assignors to Rothmans of Pall Mall Canada Limited, Toronto, Canada

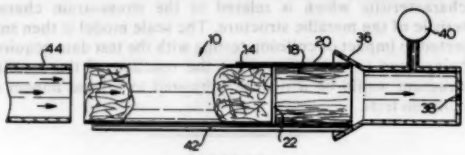
Filed Feb. 9, 1972, Ser. No. 224,829

Int. Cl. G01m *3/04*

U.S. Cl. 73—45.1 **5 Claims**

Cigarettes are inspected for imperfections in the sealing of the filter to the cigarette rod by applying air at a relatively high

velocity to the tobacco end of the cigarette while holding only the filter end of the cigarette. A characteristic of air flow of



the cigarette is measured, such as the pressure drop over the length of the cigarette. When the characteristic is abnormal, then the sealing is imperfect and the cigarette is rejected.

3,757,565

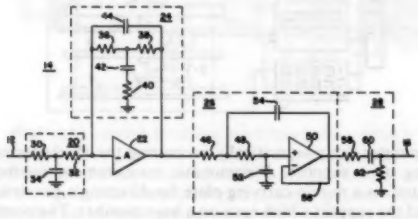
NON-CONTACT VIBRATION VELOCITY APPARATUS

Thomas Y. Wong, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 22, 1972, Ser. No. 228,182

Int. Cl. G01n *29/00*

U.S. Cl. 73—71.4 **4 Claims**



A non-contact device for measuring and monitoring vibrational velocity of a rotating shaft including a displacement probe positioned immediately above the surface of the shaft for generating an electrical displacement signal proportional to the instantaneous standoff distance between the probe and the shaft surface. The electrical signal is coupled to an active network which takes the derivative of the components of the displacement signal below a selected value and which takes the integral of the components of the displacement signal above a selected value. The output of the active network therefore is only a function of the low frequency components of the signal which, in turn, are indicative of velocity of the mass center of the shaft. Suitable circuitry is provided to display the output of the active network.

3,757,566

HARDNESS TESTER FOR TABLETS

Karl A. Flury, Dietikon, 8953 Dietikon, Switzerland, assignor to Heberlein & Co., Wattwil, Switzerland

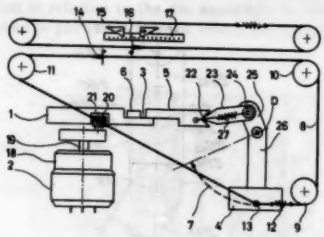
Filed Sept. 28, 1971, Ser. No. 184,450

Claims priority, application Switzerland, Oct. 14, 1970, 15179/70

Int. Cl. G01n *3/08*

U.S. Cl. 73—78 **16 Claims**

A hardness tester for tablets comprises a power-driven pressure slide supporting the tablets and a measuring slide mechanically connected to a weight. The slides and the weight constitute a pendulum weight to which a cord is fastened. The cord is trained about guide rolls and carries between two of



the rolls an engaging means actuating a drag pointer fastened to a second cord parallel to the first cord. The force acting on the tablet is indicated on a linear scale.

3,757,567

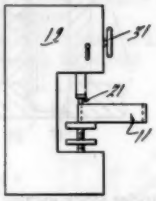
METHOD FOR DETERMINING FORMABILITY OF MATERIAL

Donald P. Worden, Racine, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed Nov. 9, 1970, Ser. No. 87,798

Int. Cl. G01n *3/42*

U.S. Cl. 73—81 **9 Claims**



Susceptibility of welded tubing to splitting as a result of cold working is determined by comparing resistance to deformation readings throughout a transverse cross section of the tubing, the readings being taken on a Rockwell hardness tester using a penetrator having a specially shaped penetrating edge.

3,757,568

COMPRESSION TEST ASSEMBLY

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Anthony H. Kariotis, Tallmadge, Ohio

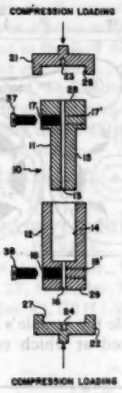
Filed Feb. 25, 1972, Ser. No. 229,413

Int. Cl. G01n *3/04*

U.S. Cl. 73—94 **7 Claims**

A compression test assembly for long, small diameter test specimens having first and second means which interfit in telescoping manner and respectively define first and second holes centered around the same longitudinal axis and having the same diameters. First and second end cap means receive opposite ends of the first and second means, respectively, and define third and fourth holes centered around the same longitudinal axis as the first and second holes. The test specimen when placed in the first and second holes has first and second ends which extend into the third and fourth holes when the first and second means are interfitted in telescoping manner,

the diameter of the first, second, third and fourth holes being just sufficiently larger than the diameter of the test specimen to prevent binding. The test specimen is thereby automatically



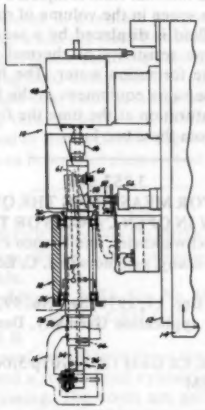
aligned and laterally supported when compressive force is applied to the end caps means and transmitted to the test specimen during testing.

3,757,569

FLAW OR CHIP DETECTOR

James E. O'Brien, Kettering, and Emerson E. Schmidt, Dayton, both of Ohio, assignors to The Bendix Corporation, Southfield, Mich.

Filed Jan. 24, 1972, Ser. No. 220,023
Int. Cl. G01b *5/28*
U.S. Cl. 73—104 **5 Claims**



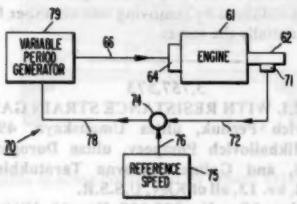
An arrangement is disclosed which detects flaws such as burrs, nicks, and/or chips by measuring the extent of deviations of the surface inspected by means of a displaceable gaging head traversed over the surface and an arrangement for generating signals corresponding to the displacement of the gaging head, with means to distinguish dimensional variations from flaws or chips by eliminating signals corresponding to displacements occurring at a low rate of change per unit length of the surface and detecting signals corresponding to displacements occurring at a high rate of change indicating the presence of a flow or chip. In the preferred embodiment, the gaging head includes a roller element adapted to be moved over an internal surface of a bore by a rotatable carrier assembly, with the angular displacements of a gaging head support member pivotally carried by the carrier assembly measured by an electronic transducer to provide the displacement signal, which is amplified and fed to an electronic filter circuit used to eliminate displacement signals corresponding to a low rate of change thereof.

3,757,570

SIMULATED LOAD FOR INTERNAL COMBUSTION ENGINES

Richard Thomas Cowley, Littleton, and Leonard Robin Hulls, Marblehead, both of Mass., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,068
Int. Cl. G01m *15/00*
U.S. Cl. 73—116 **11 Claims**



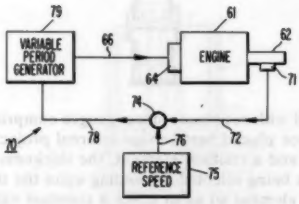
Apparatus and process for testing and analyzing the overall performance of an internal combustion engine by providing a simulated load to the engine. The simulated load is effected by periodically interrupting the engine ignition to reduce the total developed power of the engine to a value equal to the frictional horsepower at a desired speed. The period of the interruption cycle is controlled in response to the desired speed.

3,757,571

SIMULATED LOAD FOR INTERNAL COMBUSTION ENGINES

George Athanasios Chamberas, Chelmsford, Mass., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,069
Int. Cl. G01m *15/00*
U.S. Cl. 73—116 **18 Claims**



Apparatus and process for testing and analyzing the overall performance of an internal combustion engine by providing a simulated load to the engine. The simulated load is effected by periodically interrupting the engine ignition to reduce the total developed power of the engine to a value equal to the frictional horsepower at a desired speed. The period of the interruption cycle is controlled in response to the desired speed.

3,757,572

COMPRESSION TESTING METHOD

Bob G. Gower, and Frederick L. Voelz, both of Harvey, Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Apr. 14, 1972, Ser. No. 244,244
Int. Cl. G01m *15/00*
U.S. Cl. 73—116 **12 Claims**

Disclosed is a method for determining whether a combustion chamber of an internal combustion engine is compres-

sion sound. The method involves removing individual combustion chambers from service, determining the exhaust gas carbon monoxide concentration with individual chambers removed from service and comparing these carbon monoxide concentrations. An individual combustion chamber is compression unsound if the exhaust gas carbon monoxide concentration with it removed from service is substantially less than the maximum carbon monoxide concentration obtained with any other combustion chamber removed from service. Also disclosed is a method for balancing the air-fuel composition supplied to different banks of combustion chambers. This method involves removing from service one combustion chamber from each bank, analyzing the engine exhaust gases for carbon monoxide with the chamber removed from service and comparing these carbon monoxide concentrations. A balanced air-fuel composition is supplied to different banks of combustion chambers when the exhaust gas carbon monoxide concentrations obtained by removing one chamber from each bank are substantially the same.

3,757,573

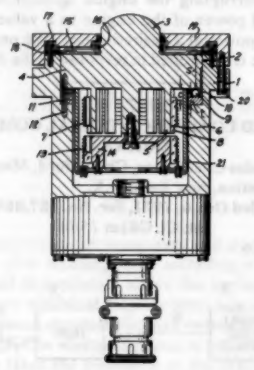
LOAD CELL WITH RESISTANCE STRAIN GAUGES

Vasily Ivanovich Pechuk, ulitsa Umanskaya, 49, kv. 8; Vladimir Mikhailovich Pompeev, ulitsa Dorogoznitskaya, 13, kv. 28, and Galina Petrovna Taratukhina, ulitsa Chapaeva, 8, kv. 13, all of Kiev, U.S.S.R.

Continuation of Ser. No. 875,119, Nov. 10, 1969. This application Jan. 25, 1972, Ser. No. 220,640

Int. Cl. G01l *1/22*

U.S. Cl. 73—141 A **3 Claims**



A load cell with resistance strain gauges comprising a solid insertion piece placed between an internal projection of the cell housing and a resilient element, the thickness of said insertion piece being selected depending upon the thickness of the resilient element so as to make a constant value with it. The latter fact provides a means for maintaining the mounting size of the cell constant when loads being measured are changed within a wide range.

3,757,574

APPARATUS FOR DETECTING THE ABILITY OF PAPER TO WITHSTAND PRINTING PROCESSES AND THE LIKE

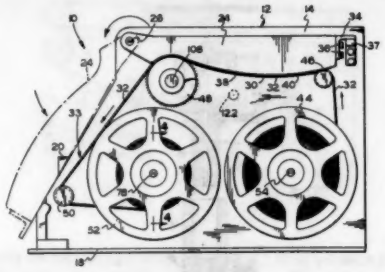
Robert Plankinton, 668 McVey, Apt. 109, Lake Oswego, Oreg.

Filed Sept. 28, 1971, Ser. No. 184,417

Int. Cl. G01n *3/02*

U.S. Cl. 73—150 A **13 Claims**

A pick and bond tester employs a pivotable sample block upon which a sample of paper to be tested is supported. A transparent, pressure sensitive tape is adhered to the sample and partially doubled back for adhesion to a belt-like strip or web positioned along and in abutting relation to the pressure sensitive tape and sample. This web is transported at a selected velocity or acceleration for withdrawing the tape from the sample in a direction such that the tape is turned at an angle of 180° as removed. The picking resistance of the paper is determined according to the web speed at which



picking first occurs, while the sample's Z-direction strength is determined by the speed at which complete delamination takes place.

3,757,575

WELL-LOGGING METHOD

Robert P. Murphy; William W. Owens, and Dwight L. Dauben, Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed July 9, 1971, Ser. No. 161,342

Int. Cl. E21b *49/00*

U.S. Cl. 73—152 **13 Claims**

This invention relates to determining the oil saturation in an underground rock reservoir by use of a log-inject-log technique. The formation rock adjacent the well bore is prepared such that the saturation conditions there are representative of those in the interwell area. A log such as an electric or thermal decay time log is then run. A driving fluid such as alcohol or a micellar fluid is injected to drive all of the fluid from the pore space in the volume of rock being logged. Then the driving fluid is displaced by a second driving fluid which has the same resistivity or thermal neutron capture cross-section as the formation water. The formation is then again logged by the same equipment as the first log run. The formation water saturation at the time the first log was run is then determined from these two logs.

3,757,576

APPARATUS FOR MEASURING THE QUANTITY OF OUTFLOW IN OPEN CANALS OR THE LIKE

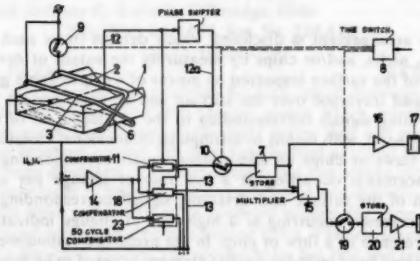
Jacob J. P. Rolff, Schwalkheim, and Franco P. Di Marco, Stuttgart, both of Germany, assignors to J. C. Eckardt AG, Cannstatt, Germany

Filed Dec. 17, 1970, Ser. No. 99,104

Claims priority, application Germany, Dec. 18, 1969, P 19 63 413.0

Int. Cl. G01f *1/00*; G01p *5/08*

U.S. Cl. 73—194 EM **15 Claims**



An apparatus and a process for measuring the quantity of flowing liquids being discharged in open canals, gutters, par-

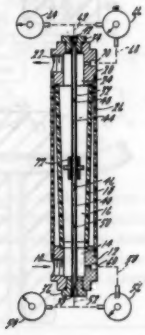
tially filled pipes or the like, wherein a measured value is obtained for the flow velocity and the height of the level by measuring the voltage induced in an electromagnetic field by movement of the liquid. Two coils are provided, at least one of which can be switched on or off separately from the other one. The coils are arranged in a cross manner such that the field resultants thereof extend in the flow direction and at right angles thereto, and at least one of the coils is connected so that its polarity can be reversed. The electromagnetic fields are alternately switched vertically for measuring the velocity and horizontally for measuring the level, and then multiplying the measured values with each other.

3,757,577

HYDRAULIC REMOTE FLUID FLOW INDICATING DEVICE

John W. Bozek, 6093 Waterfront Dr., Waterford, Mich.

Filed Aug. 27, 1971, Ser. No. 175,639
Int. Cl. G01f 1/00
U.S. Cl. 73—209 **7 Claims**



A device connected to a remote pressure gauge which will activate this gauge when the fluid flow through the device exceeds or diminishes below selective flow rates. The fluid pressure of the flowing fluid being the activating force on the indicating gauge and said fluid pressure being directed to the gauge selectively through holes in a central guide tube which are open or closed to fluid pressure depending on the position of the variable area flowmeter plummet on said guide tube.

3,757,578

TURBINE METER HAVING IMPROVED ACCURACY

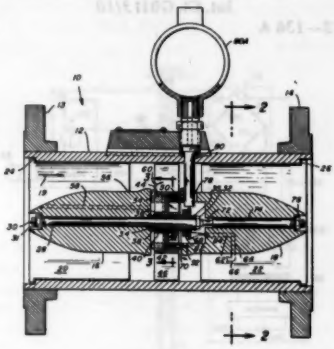
William D. Clinton, Tulsa, Okla., assignor to Signet Controls, Inc., Tulsa, Okla.

Filed Nov. 5, 1971, Ser. No. 195,974
Int. Cl. G01f 1/10
U.S. Cl. 73—231 R **8 Claims**

The conventional axial flow turbine type liquid meter has a tubular casing and a streamlined cylindrical core coaxial with the cylindrical casing. The cores are generally made in two parts which are separated with a rotatable turbine wheel in between, with blades which are operated by the liquid flow in the annular portion between the core and the casing. Such meters are found to be nonlinear when used with high viscosity liquids. In general they show a greater flow than the true flow when the viscosity is high. It is advantageous to introduce a viscous drag on the rotor to compensate for this over-indication.

In this invention the rotor wheel is constructed with a hub, an annular plate perpendicular to the axis of the wheel extending out from the hub and a cylindrical flange mounted on the outside of the annular plate, the flange carrying the plurality of radial blades. This construction forms an annular depression in one or both sides of the wheel.

The invention involves providing an extension tubular portion to the inner end of one or both of the upstream and downstream parts of the central core. These extensions cooperate with the annular depression to provide narrow spacings between the extensions and the depression whereby the viscous liquids in this meter can provide sufficient drag on the wheel to correct for the over-indication. The tubular extensions may be of fixed spacing relative to the wheel or may



be of variable spacing controlled by means exterior of the meter.

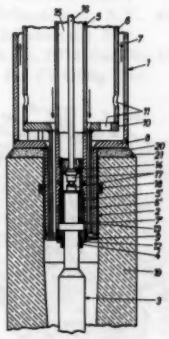
Means are also indicated for flowing liquid into the drag space of the annular depression to insure that there is always liquid in the drag space of the same type, nature, and viscosity as that flowing through the meter.

3,757,579

WATER-COOLED MEASURING PROBE FOR CONTINUOUSLY MEASURING THE TEMPERATURE OF HOT LIQUID METAL BATHS IN GREAT BASIC OXYGEN CONVERTERS

Hellmuth Smejkal, and Gunter Poferl, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen-und Stahlweke Aktiengesellschaft, Linz, Austria

Filed Aug. 2, 1971, Ser. No. 168,267
Claims priority, application Austria, Aug. 17, 1970, 7434
Int. Cl. G01k 1/14
U.S. Cl. 73—343 R **2 Claims**

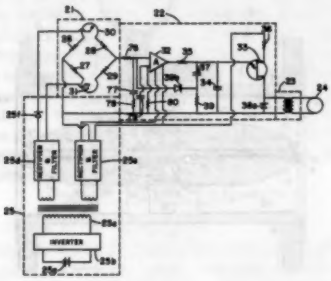


The invention relates to a water-cooled measuring probe for continuously measuring the temperature of hot liquid metal baths, comprising a probe body, a probe head set back relative to said body in shoulder-like fashion under formation of an annular floor part enclosing with the longitudinal axis of the probe an angle of 80° – 120°, a sensing portion and a refractory jacket releasably attached to the probe body and surrounding said probe head and sensing portion. Thus the stability of the measuring probe is enhanced without impairing the strength of the connection between probe head and refractory jacket or the measuring accuracy.

3,757,580
DEVICE FOR MEASURING STRAIN IN ROTATING BODIES

Charles W. Crocker, Houston, and Charles E. Barton, Kemah, both of Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed July 6, 1970, Ser. No. 52,207
Int. Cl. G01l 3/10
U.S. Cl. 73—136 A **10 Claims**

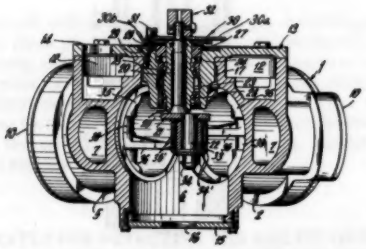


A device for measuring strain in a rotating body comprising a resistance strain gauge, a voltage-to-frequency converter, a pulse transformer, and a frequency meter. The resistance strain gauge bonded to the rotating body produces a direct current output signal having a voltage amplitude linearly proportional to the strain in the body. The voltage-to-frequency converter translates the strain gauge output signal into a pulsating signal, the frequency of which is proportional to the strain gauge output signal. The pulse transformer transmits the pulsating signal to a stationary meter which can be calibrated in useful engineering units such as strain, stress, force, or torque.

3,757,581
DISPLACEMENT METER FOR MEASURING FLUIDS

Paul A. Mankin; Thomas O. Mitchell, and Paul Zanoni, all of Muskegon, Mich., assignors to Bennett Pump Incorporated, Muskegon, Mich.

Filed Oct. 28, 1971, Ser. No. 193,303
Int. Cl. G01f 3/04
U.S. Cl. 73—247 **10 Claims**

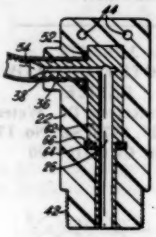


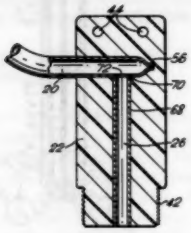
The disclosure relates to an improved meter for measuring fluids such as gasoline including a plurality of pistons connected to a crankshaft by means of flexible rods, with the common crankshaft being journalled in axial relation to a series of cylinders. An adjustable eccentric mechanism is arranged on the crankshaft to enable an accurate adjustment of the stroke of the pistons, and a consequent adjustment of the displacement of the pistons to achieve a meter of high precision.

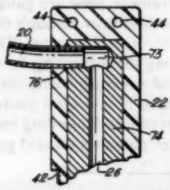
3,757,582
TUBULAR SPRING ELEMENT AND A METHOD OF PRODUCING THE SAME

Englebert Sellmaier, 8242 Bischofselwsen, Loipler; Wolfgang Hartling, 824 Schonau, Haus Waltraud, and Helmut Schnurr, 8242 Bischofswiesen, Rosspointweg, all of Germany

Filed Feb. 7, 1972, Ser. No. 224,112
Claims priority, application Germany, Aug. 10, 1971, P 21 40 086.2
Int. Cl. G01l 7/04
U.S. Cl. 73—418 **25 Claims**







A tubular spring having a first end and a second end is fixed at its first end in a plastic holder. The plastic holder has a central passage. The second end is closed by a terminal fitting. The interior of the tubular spring communicates with the passage in the holder but is otherwise sealed in relation to the outside atmosphere.

The tubular spring is fixed within the holder by injection molding the holder about the first end of the spring. An insert may be disposed within the portion of the tubular spring within the holder to prevent deformation of the spring. Alternatively, a removable filler material may be introduced into the tubular spring and removed after the injection molding step.

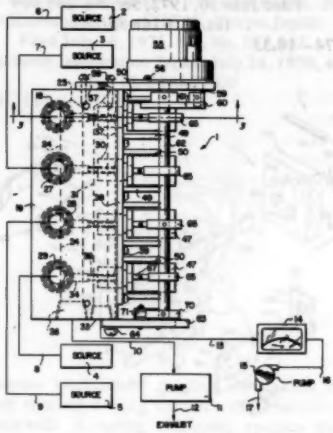
3,757,583
FLUID SAMPLING VALVE

Frederick A. Ludewig, Jr., Ballston Spa, N.Y., assignor to Environment/One Corporation, Schenectady, N.Y.

Filed Feb. 8, 1971, Ser. No. 113,256
Int. Cl. G01n 1/26
U.S. Cl. 73—421.5 R **20 Claims**

A sampling valve to be used in the system wherein fluid samples are to be selectively taken from a plurality of sources and fed to a common monitoring device or the like is provided

with a valve block having separate parallel bores to be connected to the sources, a common independent exhaust bore to receive continuous flow from all of the source bores, and a corresponding plurality of sample passages for tapping each of the source bores between their inlets and the common exhaust bore. The system may be balanced and calibrated with set



screw restrictors for each of the source bores. A common rotary cam shaft operates bracket mounted L-shaped pivoting levers for actuating corresponding numbers of switches and diaphragm type valves in fluid series between the sample passages communicating with the source bores and a single sample outlet.

3,757,584

DILUTER FOR LABORATORY TITRATION

Reginald R. Gallant, Bristol, Conn., assignor to Linbro Chemical Co., Inc., New Haven, Conn.

Filed Mar. 13, 1972, Ser. No. 233,887
Int. Cl. G01n *1/10*; B01f *3/08*
U.S. Cl. 73—425.4 P **20 Claims**

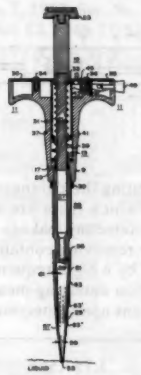
A diluter having a shaft, and a liquid holding body at one end of and coaxial with the shaft, of which the body has a ring-shaped chamber of capillary width about its axis, and axially spaced ports providing sole communication between the chamber and the outside, and cam means in the body inclined to the body axis and exposed to the chamber for impelling liquid therein on oscillating the body about its axis.

3,757,585

PIPETTE APPARATUS

Robert E. Heller, and Stanley T. Hall, both of Santa Rosa, Calif., assignors to Heller Laboratories, Santa Rosa, Calif.

Filed Sept. 15, 1971, Ser. No. 180,814
Int. Cl. B01l *3/02*
U.S. Cl. 73—425.6 **4 Claims**



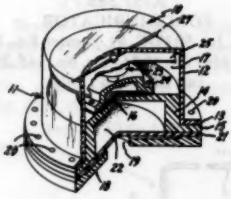
A manually-operated pipette for handling small volumes of liquid includes a spring-biased plunger and volume rod extending into a volume chamber. A spring-biased overriding slide sleeve is coupled to the plunger only during overriding ejection motion of the plunger, and switch means coupled to the sleeve provides electrical signailing of the ejecting motion. A removable universal disposable tip for pipettes of various maximum capacities communicates with the volume chamber of the body.

3,757,586

PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENT

Marcus P. Borom, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sept. 16, 1971, Ser. No. 181,048
Int. Cl. G06g *5/00*
U.S. Cl. 73—432 R **8 Claims**

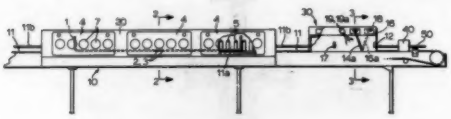


A pneumatic analogue computer for use in calculating and indicating decompression schedules is disclosed. It utilizes a semipermeable membrane through which a gas diffuses in simulation of the uptake and release of nitrogen by a diver's body tissue during the hyperbaric exposures of underwater excursions.

3,757,587
DEVICE FOR TESTING THE TIGHTNESS OF CONTAINERS

Jurgen Ahnsorge, Hamburg, Germany, assignor to Hans Schwarzkopf GmbH, Hamburg, Germany

Filed May 6, 1970, Ser. No. 35,205
Claims priority, application Germany, May 6, 1969, P 19 23 012.7
Int. Cl. G01m *3/16*
U.S. Cl. 73—45.4 **1 Claim**

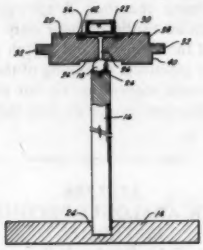


An apparatus for testing the tightness of containers such as aerosol containers in which there are means for heating the containers, means for detecting leakage of gases from the containers and means for removing containers having leaks. The containers are heated by a high frequency electrical field and passed through a suction detecting means which actuates the container removal means upon detection of any leaked gases.

3,757,588
WHEEL BALANCER

William C. Bateman, 1110 E. 78th St., Derby, Kans.

Filed Sept. 23, 1971, Ser. No. 182,942
Int. Cl. G01n *1/12*
U.S. Cl. 73—483 **1 Claim**

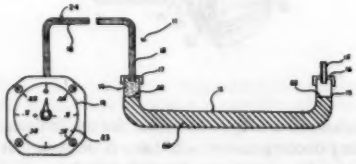


A wheel balancer has pedestal mountable in a base. A wheel support mounts on the pedestal by a spherical bearing. The wheel support supports a wheel and a level indicator on one side, and is supported from the other by the spherical bearing. It is reversible to support different sized wheels.

3,757,589
FORCE INDICATOR

Robert O. Brandt, Jr., 5027-C, Ft. Sumter Rd., Raleigh, N.C.

Filed May 20, 1971, Ser. No. 145,296
Int. Cl. G01p *15/02*
U.S. Cl. 73—502 **6 Claims**

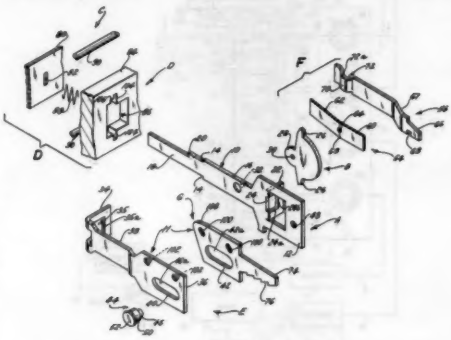


In abstract, a preferred embodiment of this invention is a remote reading force measuring and indicating device utilizing a generally horizontally disposed, U-shaped liquid containing tube connected to a dial type pneumatic instrument.

3,757,590
PUSHBUTTON ASSEMBLY

Donald B. Mears, Jr., Thompsonville, Conn., assignor to General Instrument Corporation, Newark, N.J.

Filed June 30, 1972, Ser. No. 267,909
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.33 **3 Claims**

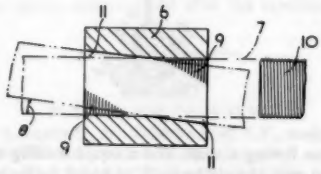


A pushbutton assembly for preset tuning is provided with a simple and effective mechanism for biasing the operative pushbutton slide into engagement with the front guide opening in response to pressure on the pushbutton thereby to significantly improve tuning accuracy. For this purpose a pushbutton support member is provided with inclined slots receiving projections formed on an auxiliary member movable with the pushbutton slide. As the pushbutton is pressed inwardly the camming action between the projections and inclined slots force the pushbutton support upwardly into engagement with the upper edge of the guide opening, that engagement in turn forcing the pushbutton slide against the lower edge of the guide opening to insure angular stability of the slide throughout the pushbutton stroke. The auxiliary member in turn carries a clamping mechanism adapted to lockingly engage an adjusting cam pivotally mounted on the pushbutton slide as the cam is forced into engagement with the tuning control element for initial setting.

3,757,591
DISENGAGEABLE NUT AND SCREW ARRANGEMENT

Peter Graham Taylor, Cambridge, England, assignor to Cambridge Scientific Instruments Limited, Cambridge, England

Filed Sept. 30, 1971, Ser. No. 185,258
Claims priority, application Great Britain, Sept. 30, 1970, 46,617/70
Int. Cl. F16h *27/02*
U.S. Cl. 74—89.15 **3 Claims**



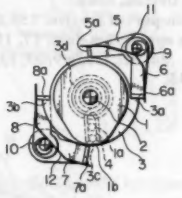
A nut and screw arrangement particularly for scientific instruments having a lead nut and screw in which the nut has two bores inclined with one another, the one plain and the other screw threaded and means for tilting the nut into and out

of engagement of the lead screw so that part of the apparatus may be advanced finely by the screw and coarsely manually.

3,757,592
INSTANTANEOUS INTERMITTENT FEEDING MECHANISM

Katsuhiko Okabe, Saitama-ken, Tokorozawa-shi, Japan, assignor to Kabushikikaisha COPAL, Tokyo, Japan

Filed July 16, 1971, Ser. No. 163,262
Claims priority, application Japan, July 24, 1970, 45/64905
Int. Cl. F16h *27/00*
U.S. Cl. 74—112 **2 Claims**

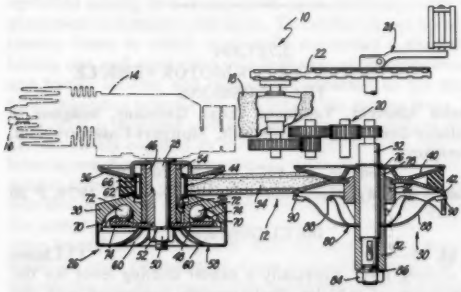


Instantaneous intermittent feeding mechanism having a continuously rotating driving member and a driven member coaxial therewith. A spring resiliently couples the driven member with the driving member so that, when a relative rotation is established between the driving member and the driven member by temporarily holding the latter stationarily while the former is rotating, a rotational driving force is given to the driven member by the spring so as to instantaneously rotate the same. The driven member is releasably held stationary by each of the locking members arranged around the driven member, and the locking members are released by a cam portion formed in the driving member as the same is rotating so that the driven member which is held stationary by one of the locking members is instantaneously rotated when the cam portion releases that locking member until the succeeding locking member arrests the driven member so as to be ready for the instantaneous driving of the driven member when the cam portion reaches the succeeding locking member, thereby effecting the intermittent feeding of the driven member.

3,757,593
VARIABLE-RATIO BELT-TYPE TRANSMISSION FOR ENGINE-DRIVEN CYCLE, INCORPORATING PEDAL-OPERATED ENGINE STARTING MEANS

Bert N. Svenson, Norwalk, Calif., assignor to Instrument Systems Corporation, Jericho, N.Y.

Filed June 7, 1971, Ser. No. 150,523
Int. Cl. F16h *9/00*
U.S. Cl. 74—238.17 A **13 Claims**

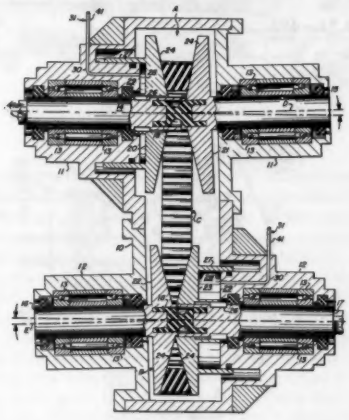


An engine-driven cycle having a variable-ratio belt-type transmission incorporating pedal-operated means for starting the engine. The transmission transmits power from a driving shaft of the engine to a driven shaft of the cycle when the engine is running, and transmits pedal-generated power from the driven shaft to the driving shaft to start the engine when it is not running.

3,757,594
VARIABLE SPEED BELT TRANSMISSION

Emerson L. Kumm, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Feb. 7, 1972, Ser. No. 223,888
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 F **19 Claims**

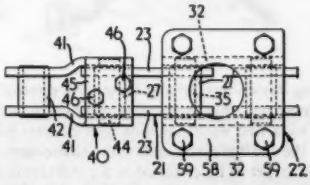


The subject transmission has a casing with spaced pulley elements composed of sets or pairs of cone-faced disk sections. The sections of each pair are in opposed relation and supported for simultaneous rotation about axes disposed in predetermined angular relation. One pair of disk sections is adapted to be power driven, a Vee belt having a predetermined compressibility with spaced lobes on the inner sides being trained around the sets of pulleys and transmitting rotary movement from the power driven set, hereinafter designated "the driving set," to the other driven set. One disk section of each pair is axially movable toward and away from the other disk section to change the effective diameters of the pulleys and vary the speed ratio between the driving and driven pulleys. Through use of the angular rotational axes arrangement high friction materials, such as polyurethane on brass, may be used which permits a reduction in the belt frictional surface area, for a specific belt tension, and consequently the use of smaller pulleys.

3,757,595
CHAIN LINKS

Daniel Cheale, Brentwood, England, assignor to Howard Harvestore Limited, Edmunds, Suffolk, England

Filed Nov. 19, 1971, Ser. No. 200,412
Claims priority, application Great Britain, Nov. 26, 1970, 56454/70; July 24, 1971, 34847/71
Int. Cl. F16g *13/02*
U.S. Cl. 74—245 C **7 Claims**



A chain is made up of interconnected links, each link having side members interconnected by pins or bushes. In forming

the links the pins and bushes are initially cylindrical and splines are cut in the ends of the pins and bushes so that the outer diameter of the splines has the same diameter as the remainder of the pins and bushes. The splined portions are then forced into bores in the side members so that the side members are secured rigidly together.

3,757,596

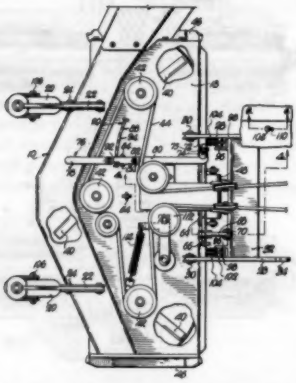
MOTION TRANSMITTING STRUCTURE

James E. McCanse, Oregon, Ill., assignor to Hesston Corporation, Hesston, Kans.

Filed Feb. 18, 1972, Ser. No. 227,468

Int. Cl. G05g 7/00

U.S. Cl. 74—491 **10 Claims**



A tractor implement employs a torque rod having an angularly offset projection, a swingable, adjusting lever provided with a tube slidably receiving the projection, and a crank pin on the rod engageable with and supported by a hitch assembly interconnecting the implement with the tractor for translating the swinging motion of the lever into an upward or downward movement of one end of the implement.

3,757,597

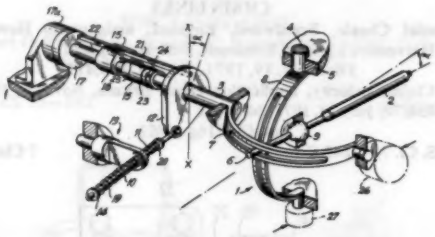
AIMING DEVICE

Jean-Luc Vogel, Meudon; Jacques Francois Dominique De Bernardi, Rueil Malmaison, and Claude Moulinard, Poissy-Beauregard, all of France, assignors to Etat Francais, Paris, France

Filed Oct. 20, 1972, Ser. No. 299,328

Int. Cl. G05g 9/04

U.S. Cl. 74—471 XY **8 Claims**



An aiming device comprising an aiming control rudder bar having at least one shaft rotatably mounted in a fixed frame and urged by a first elastic means to a neutral position. The position of the shaft is associated with the movements of a line of sight of a target to be checked in a predetermined relation. A plate is rotatably mounted on said shaft and the plate and shaft are coupled together through the intermediary of jaws and a second elastic means of higher strength than the first, to drive the plate from the shaft away from the neutral position. The plate can be held by an electromagnetic lock or the like in any fixed position to keep the shaft in a frozen position under the action of the second elastic means. The rotation of the aiming control shaft is thus principally effected against the first elastic means from the neutral position when the plate is not locked and against the second elastic means from the freeze position when the plate is locked in a fixed position.

3,757,598

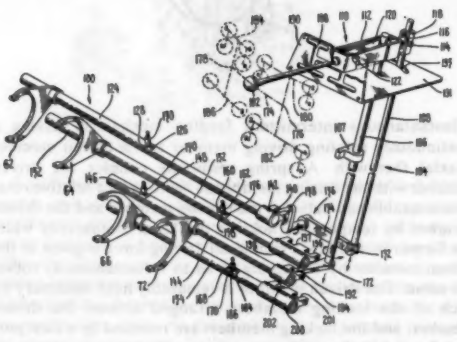
SINGLE LEVER CONTROL FOR TRANSMISSION

Jean Claude Van Dest, Westland, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

Continuation-in-part of Ser. No. 155,051, June 21, 1971, abandoned. This application Sept. 17, 1971, Ser. No. 181,403

Int. Cl. G05g 9/00, 13/00

U.S. Cl. 74—473 R **17 Claims**



Transmission apparatus including gear shift means having a plurality of forward speed ratio settings and a plurality of reverse speed ratio settings with a single operating lever, the operating lever having a plurality of forward speed ratio settings corresponding to the forward speed settings of the shift means. Actuating means innerconnects the operating lever with the gear shift means for actuating the same to the forward speed settings in response to movement of the operating lever to its corresponding forward speed ratio setting and for actuating the shift means to a reverse speed settings in response to additional movement of the operating lever when the operating lever is in at least some of its forward speed ratio settings. Speed change gear means are operated by the gear shift means to provide a plurality of forward and reverse drive paths between an input shaft and an output shaft, each of the drive paths corresponding to one of the settings of the shift means.

3,757,599

SHIFTING LEVER FOR MOTOR VEHICLE TRANSMISSIONS

Wilhelm Albrecht, Vaihingen (Enz), Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Nov. 19, 1971, Ser. No. 200,496

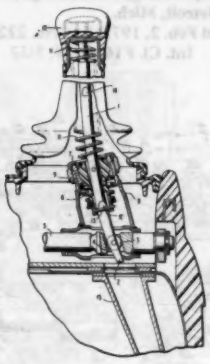
Claims priority, application Germany, Nov. 21, 1970, P 20 57 311.9

Int. Cl. G05g 9/00

U.S. Cl. 74—473 **17 Claims**

A shifting lever, especially a center shifting lever for the transmission of vehicles disengageably connected with the shifting linkage leading to the transmission and/or a fixed vehicle part by application of axial pressure forces that are larger than the forces necessary for the shifting of the transmission.

The shifting lever after the disengagement is displaceable in the axial direction against the force of a compression spring.



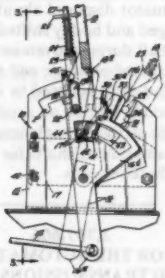
Upon application of a predetermined tensional force the shifting lever may be brought back to its normal operating position.

3,757,600

AUTOMATIC TRANSMISSION SHIFTER HAVING CONVENTIONAL MODE AND RACING MODE OPERATIONAL CAPABILITIES

William J. Bieber, R.D. No. 1, Pipersville, Pa.

Filed May 15, 1972, Ser. No. 253,580
Int. Cl. G05g 7/08
U.S. Cl. 74—473 R 20 Claims



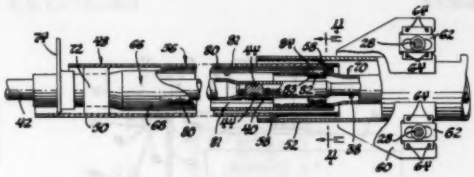
A shifter is provided for use with an automatic transmission on an automobile to enable the transmission to be shifted in a conventional mode and to enable the transmission to be upshifted quickly in a racing mode upon rapid sequential displacement of a master shift lever. The shifter comprises a stationary frame to which is pivotally connected a slave lever having one end connected to a shift arm on the transmission and having another end releasably connected to the master lever through a selector pin carried on the master lever. The slave lever is provided with a series of stepped surfaces which are selectively engaged by the selector pin to index the slave lever in one direction for upshifting the transmission when the master lever is pivoted sequentially against a stop. There is provided means to arrest pivotal motion of the slave lever at the completion of an upshift to prevent inertia forces on the slave lever from causing it to shift the transmission inadvertently. In each embodiment, there is provided means to bias the selector pin downwardly into engagement with the stepped surfaces for causing the pin to descend the surfaces as upshifting proceeds. In certain of the embodiments, there is provided means to bias the master lever into a home position at the completion of an upshift cycle.

3,757,601

COLLAPSIBLE STEERING COLUMN ASSEMBLY

Harold J. Burke, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 22, 1972, Ser. No. 265,291
Int. Cl. B62d 1/18
U.S. Cl. 74—492 3 Claims



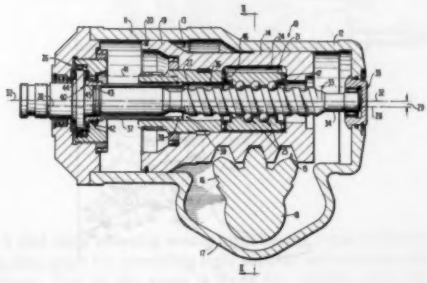
A telescopeable tube assembly adapted for incorporation in a collapsible steering column assembly, the tube assembly including a first tube section, a second tube section telescopically disposed relative to the first tube section, a plurality of longitudinal track portions on one of the tube sections, a corresponding plurality of seat portions on the other of the tube sections, and a plurality of cylindrical spring pins disposed between the tube sections in the seat portions and in the track portions, the natural resilience of the spring pins generating mechanical friction between a surface of the spring pins and the track portions which friction normally maintains the tube sections in fixed axial relation but which effects energy absorption at a predetermined rate during forced telescopic collapse of the tube assembly.

3,757,602

SERVO STEERING FOR VEHICLES

Hans-Joachim M. Forster; Klaus Katz, and Reinhold Abt, all of Stuttgart, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Dec. 3, 1971, Ser. No. 204,649
Claims priority, application Germany, Dec. 5, 1970, P 20 60 021.9
Int. Cl. B62d 3/08
U.S. Cl. 74—499 16 Claims



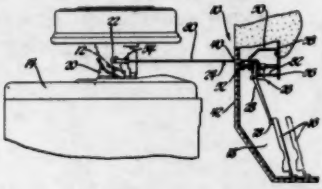
A servo-steering mechanism for vehicles, in which the steering worm is connected with the working piston to convert the rotary movement of the worm into axial movement of the piston to provide a drive connection for the steering shaft; the steering worm is thereby eccentrically supported in the working piston.

3,757,603

DUAL ROLLER THROTTLE CONTROL-CABLE MECHANISM

Walter J. Cattin, Clarkston, Mich., and Edgar C. Paffrath, Frankenmuth, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 31, 1972, Ser. No. 276,642
Int. Cl. G05g 1/14; F16c 1/10
U.S. Cl. 74—513 2 Claims



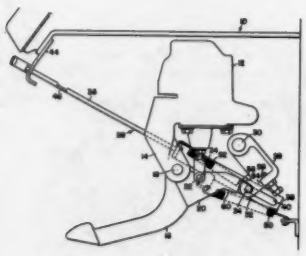
An adjustable cable mechanism for operatively interconnecting an engine throttle with an adjustable accelerator pedal includes a control cable threaded from a fixed location along a first cable run to and serially around a fixed first roller and a pivotable second roller mounted on a pedal actuated control lever, and therefrom to the throttle along a second cable run. Pedal actuation pivots the control lever and the second roller to shift the second cable run and thereby control opening of the throttle. The rollers are mounted on an adjustable bracket for changing the relative lengths of the cable runs without changing the overall length of cable to permit fore and aft adjustment of the control lever for accommodating varying pedal positions.

3,757,604

SERVICE BRAKE LOCK MECHANISM

Kenneth Roger Schroeder, Holy Cross, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Sept. 29, 1972, Ser. No. 293,671
Int. Cl. G05g 5/06
U.S. Cl. 74—529 5 Claims



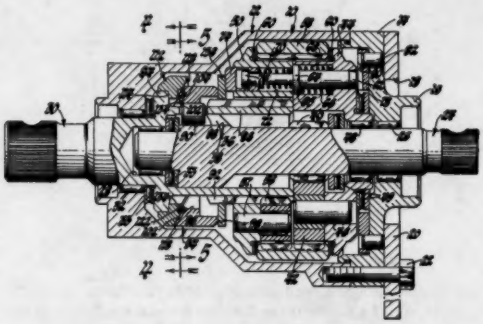
A lock mechanism is provided for selectively locking the service brakes of a tractor or the like in their fully engaged position. The lock mechanism includes a control rod which is movable between a released and an engaged position, the rod when in its engaged position conditioning a locking pawl which upon full application of the vehicle brakes will rotate to a position preventing the vehicle brake pedal from returning to its released position.

3,757,605

TORQUE RESPONSIVE TRANSMISSION MECHANISM

Russell L. Morden, Lansing, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 2, 1972, Ser. No. 222,888
Int. Cl. F16h 3/74, 5/52
U.S. Cl. 74—751 3 Claims



A mechanism adapted to transfer torque from an input to an output shaft at either a unitary transmission ratio or a ratio exceeding unity wherein the transmission ratio is automatically changeable in response to the magnitude of the torque applied at the input shaft, the mechanism including automatic ratio changing means including a pawl supported on the output shaft for rotation therewith and for radial bodily movement relative thereto between a retracted position and an extended position directly coupling the input and output shafts, a cam on the input shaft adapted to cam the pawl from the extended to the retracted position under conditions of high torque input, an annular actuator disposed about the output shaft and adapted to be engaged and bodily shifted by the pawl transversely of the output shaft during movement of the latter from the extended to the retracted position, and a cam between the actuator and the output shaft adapted to impart to the actuator during transverse bodily motion an axial component of bodily motion operative to activate a planetary gear set disposed between the input and output shafts for increasing the torque transmission ratio therebetween.

3,757,606

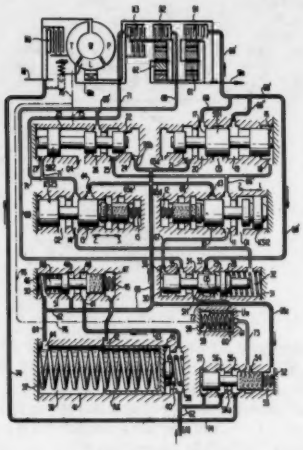
APPARATUS FOR THE AUTOMATIC SHIFTING OF CHANGE-SPEED TRANSMISSIONS, ESPECIALLY OF MOTOR VEHICLES

Hans-Joachim M. Forster, Stuttgart-Riedenberg, and Ulrich Eltze, Esslingen-Liebersbronn, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Sept. 29, 1970, Ser. No. 76,463
Claims priority, application Germany, Sept. 29, 1969, P 19 49 084.7
Int. Cl. F16h 45/02, 47/08
U.S. Cl. 74—733 39 Claims

A method and apparatus for automatically shifting the individual speeds of a change-speed gear, particularly for motor vehicles, by means of force-locking shifting elements and by the use of a hydrodynamic unit, such as a torque converter or hydrodynamic coupling, whose slippage condition is increased during the change in transmission ratio by engageable means, in which the pressure space of the shifting element for the new speed is filled with a pressure medium while the shifting element for the pre-existing speed remains under hydraulic shifting pressure and the slippage condition in the hydrodynamic unit is maintained for a certain length of time; only after the filling of the pressure space of the shifting element for the new speed and with substantial simultaneous disengagement of the pre-existing speed, the slippage condition in the hydrodynam-

ic unit is then increased; in the event a by-pass clutch is provided for the hydrodynamic unit, the by-pass clutch remains engaged until the pressure space of the servo-shifting element



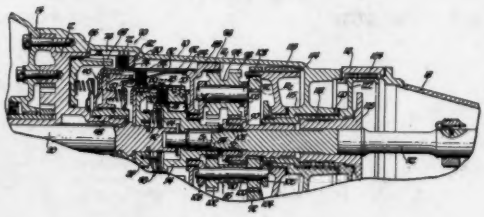
for the new speed is completely filled, at which time the by-pass clutch is disengaged with simultaneous disengagement of the pre-existing speed.

3,757,607

MULTI-SPEED TRANSMISSION

John D. Malloy, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 27, 1972, Ser. No. 266,540
Int. Cl. F16h 57/10
U.S. Cl. 74—761 6 Claims



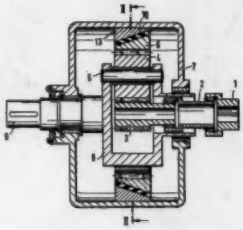
A multi-speed transmission having a compound planetary gearing arrangement with an input reaction ring gear, a reaction ring gear, an input sun gear and a reaction sun gear. The ratio (R_1/R_3) of the pitch diameters of the input reaction ring gear to the reaction ring gear is greater than 1.00 and the ratio (S_1/S_3) of the pitch diameters of the input to reaction sun gears is less than 1.00. This relationship permits the transmission to have substantially equal output speed steps in the forward speed ratios or a combination geometric-constant output speed step.

3,757,608

SOLAR AND PLANETARY GEAR SYSTEM WITH LOAD PRESSURE COMPENSATION

Horst Willner, Essen, Germany, assignor to Bayerische Berg-, Hutten- und Salzwerke Aktiengesellschaft, Munchen, Germany

Filed Nov. 22, 1971, Ser. No. 200,975
Claims priority, application Germany, Nov. 21, 1970, P 20 57 312.0
Int. Cl. F16h 1/28, 57/00
U.S. Cl. 74—801 6 Claims



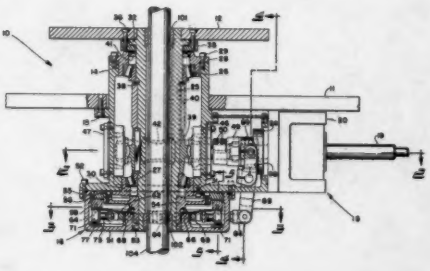
A solar and planetary gear system with load pressure compensation wherein the inner solar wheel is not deposited but bears down on the planetary wheels, the outer solar wheel being elastically connected with the gear housing or with the propelling or propelled part to make possible tumbler movements.

3,757,609

UNIVERSAL INDEX MECHANISM

Martin J. Zugel, Cleveland, Ohio, assignor to Cyclo Index Corporation, Cleveland, Ohio

Filed Jan. 10, 1972, Ser. No. 216,698
Int. Cl. B23b 29/32
U.S. Cl. 74—826 16 Claims



A dial plate indexing mechanism having a pair of intermeshing ring gears for providing rigid support and precise index locations. One of the gears is fixed for rotation with the dial plate while the other is supported on plural leaf springs affixed to a base providing rotative rigidity but axial resilience for locking and unlocking purposes. Plural cam rollers engage cam surfaces on the back of the axially movable gear to wedge the latter into locking engagement, such force being derived from a face cam and linkage arrangement driven in timed relation to a worm wheel drive for the dial plate index movement by way of an intermittent drive mechanism.

3,757,610

CONTROL SYSTEM FOR GAS TURBINE ENGINE

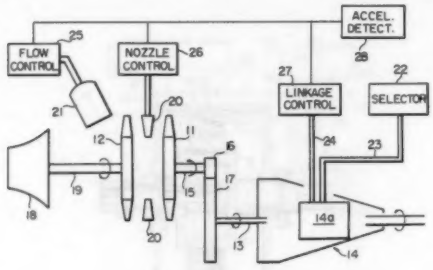
Seishi Kubota, Yokosuka; Takashi Kunugi, Yokohama, and Tetsuo Katsume, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed July 23, 1971, Ser. No. 165,048

Claims priority, application Japan, Sept. 17, 1970, 45/81509

Int. Cl. B60k 21/00; F02c 9/02

U.S. Cl. 74—843 5 Claims



A control system is disclosed for a vehicle gas turbine engine having a power turbine driving a power transmission of a motor vehicle on which the gas turbine engine is mounted, an adjustable nozzle which is positioned relative to the power turbine, and a combustor, wherein a flow of fuel to the combustor, an angular position of the adjustable nozzle relative to the power turbine and a fluid pressure controlling a gear train control system of the power transmission are concurrently regulated electrically in accordance with a variation of the selected position and accordingly of the opening degree of an accelerator pedal.

3,757,611

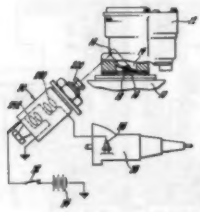
THREE POSITION SOLENOID IDLE STOP

Charles E. Buck, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed May 24, 1972, Ser. No. 256,376

Int. Cl. B60k 21/00; H02k 33/00; B60k 33/00

U.S. Cl. 74—860 4 Claims



A three position solenoid or vacuum actuated throttle stop device having independent adjustment of two positions, allowing independent adjustment of the third position and comprising first and second axially aligned actuators, each of which carries a bolt-shaped axially aligned extension which is axially adjustable with respect to its actuator. The second extension is the throttle stop which is normally biased by a spring against the first extension and into a first position which allows the throttle idle position to be set independently by external means. A first signal causes the first actuator to move the throttle stop against the spring into a second independently adjustable position; and a second signal causes the second actuator to move the throttle stop out of engagement with the first extension into a third independently adjustable position.

3,757,612

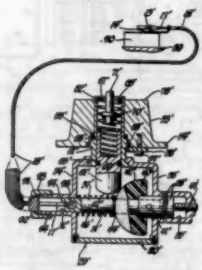
TRANSMISSION AND CONTROLS

Robert H. Schaefer, Westfield, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 24, 1971, Ser. No. 127,530

Int. Cl. B60k 21/00; F16c 1/12; F16k 31/524

U.S. Cl. 74—865 9 Claims



A transmission controlled by a combustion engine torque demand or fuel feed control member which is connected by a linkage to move a cam actuator and cam follower which actuates a torque demand pressure regulator valve proportional to the movement of the fuel feed member to provide a torque demand pressure uniformly proportional to engine torque. A support housing is rotatably mounted in an aperture in a wall of the transmission housing for rotation about the axis of the cam follower and the cam actuator is reciprocably mounted on the support housing on an axis perpendicular to the axis of the cam follower. The support housing rotates about its axis so that swinging movement of the connecting linkage is accommodated by rotation of the support housing for accurate transmittal of the torque demand signal from the fuel feed control to the cam actuator and follower without binding or strain. The cam actuator has a profile so that its movement uniformly proportional to fuel feed provides in the cam follower movement uniformly proportional to engine torque.

3,757,613

MULTIPLE SCREWING SYSTEM

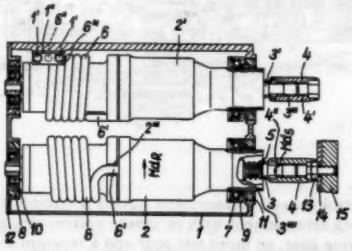
Karl-Friedrich Arndt, and Helmar Nafe, both of Essen, Germany, assignors to Fried Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Mar. 14, 1972, Ser. No. 234,526

Claims priority, application Germany, Mar. 17, 1971, P 21 12 907.7; Mar. 17, 1971, P 21 12 907.7

Int. Cl. B25b 23/14

U.S. Cl. 81—57.22 4 Claims



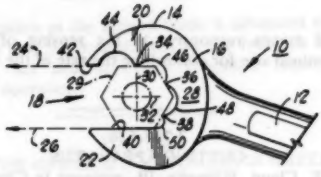
A multiple screwing system, in which each individual screwing device has helical spring means associated therewith which surrounds one end portion of the individual housing surrounding the pertaining screw spindle, said helical spring means having one end portion connected to said individual housing and having its other end portion connecting to frame means com-

mon to and surrounding the individual housings, while the bearings for the individual housings are journalled in elastic supporting means permitting a slight radial displacement of said individual housings.

3,757,614
RACHET TYPE SPEED WRENCH

James P. Evans, 3233 S.W. 23rd St., Oklahoma City, Okla., and William R. Avey, Jr., 1225 N. Rockwell, Oklahoma City, Okla.

Filed Nov. 15, 1971, Ser. No. 198,930
Int. Cl. B25b *13/46*
U.S. Cl. 81—119 6 Claims

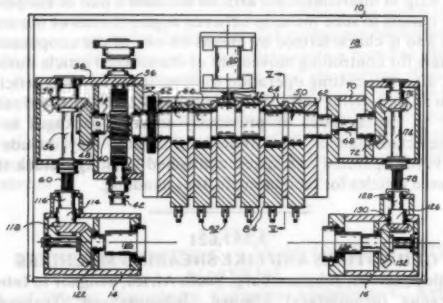


An improved open end wrench which is adapted for turning hexagonal head nuts, the wrench being of unitary formation with no moving parts yet having the capability of ratchet-type wrench return between successive power strikes. The wrench consists of a one piece formation of uniform substance having jaw portions which define a recessed wrench surface or configuration of non-symmetrical character as comprised of a series of juxtaposed arcuate indentations. The co-extensive arcuate recesses about the inner wrench surface are so formed to extend four surfaces into bearing contact with a hexagonal head nut during power stroke, while retaining the capability of unobstructed reverse or return stroke movement about substantially the same axis of revolution.

3,757,615
SINGLE SPINDLE CRANKSHAFT MACHINE

Joseph A. Oeming; Allen J. Heffron, both of Saginaw, and Arthur L. Estry, Jackson, all of Mich., assignors to C. M. Systems Incorporated, Saginaw and Crankshaft Machine Company, Jackson, both of Mich.

Filed Aug. 9, 1971, Ser. No. 170,100
Int. Cl. B23b *5/18, 5/04, 21/00*
U.S. Cl. 82—9 R 8 Claims

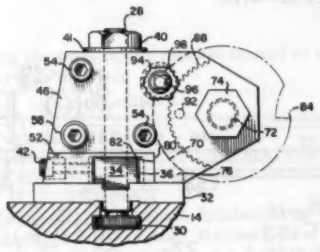


A single spindle machine for machining crankshaft pins wherein high accuracy and excellent finishes are achieved. The machine includes a base wherein the headstock and tailstock spindles are fixedly mounted thereon, and a slide mounted on the base movable toward and away from the spindles' axis mounts an electric drive motor, a master crankshaft for tool positioning, and the tools, wherein the tools may be moved relative to the crankshaft being machined. Bidirectional gearing interconnects the headstock and tailstock spindles to a primary power input gear wherein feedback reaction forces occurring during machining produce a biasing action upon the drive gearing system eliminating play in the power train.

3,757,616
TOOL-HOLDER FOR MACHINE TOOLS

Joseph A. Raccio, Raccio Dr., Bethany, Conn.

Filed Oct. 27, 1971, Ser. No. 193,098
Int. Cl. B23b *29/12*
U.S. Cl. 82—36 R 10 Claims

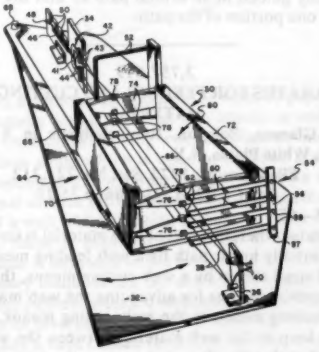


A tool-holder for machine tools, such as engine lathes and screw machines having cross-slides by which cutting tools are moved into and out of engagement with the work. The present unit consists of an assemblage of parts that can be arranged to hold the cutting tools such that they can approach the work from either side, said assemblage of parts including a body member, which is clamped securely to the cross-slide, and a tool-mounting plate, which is separate from the body member so that it can be mounted on either side of the body member, depending on which side of the work the tool is to be located. By making the tool-mounting plate separate from the body member, it can also be readily replaced by a similar plate adapted to hold a tool of a different size, thereby making it possible to use tools designed for use on machines of other sizes.

3,757,617
FOAM CUTTING APPARATUS

John A. Fabbri, 19067 Celtic St., Northridge, Calif.

Filed Mar. 16, 1972, Ser. No. 235,332
Int. Cl. B26d *3/10*
U.S. Cl. 83—1 11 Claims



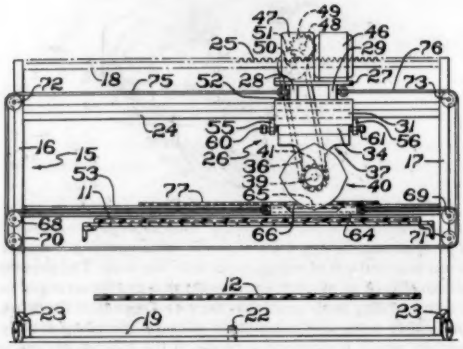
An apparatus and a method for cutting rigidized foam material which comprises one or more electrically heated,

stretched wires between at least a pair of fixed points, the foam material being directed into the heated wires at a uniform rate by a foam block retaining mechanism, the wires being directed by at least a pair of templates adjacent the mechanism at opposite ends of the foam material, thus guiding the wires through the foam, thereby cutting it to the shape of the templates.

3,757,618
FABRIC CUTTING

Mathew Kuts, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Continuation-in-part of Ser. No. 146,193, May 24, 1971, abandoned. This application Oct. 1, 1971, Ser. No. 185,544
Int. Cl. B23d *19/02*
U.S. Cl. 83—471.3 **22 Claims**



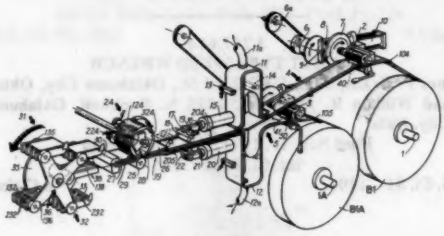
Bias cutting of rubberized fabric material wherein a carriage is reciprocated on a support frame, which frame is adjusted angularly to determine the bias angle of cut. A cutter support is mounted on the carriage for pivotal adjustment about a vertical axis to position the cutter that it supports to provide for a shearing cutting action. Such cutter support journals for rotation a shaft that supports on one end a rotating cutter with a plurality of circumferentially spaced linear cutting edges. A spring on the other end of the shaft biases the cutters into shearing engagement with a cutter guide over which the fabric material is to travel and is positioned for cutting. The cutting action of the cutters is a shearing action as the cutter and carriage are reciprocated across the support frame. In lieu of a single carriage and cutter, a pair of cutter supports may be continuously guided in an orbital path so that the rotary cutters cut in one portion of the path.

3,757,619
APPARATUS FOR FEEDING AND CUTTING WEB MATERIAL

Goffredo Gianese, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed Jan. 27, 1972, Ser. No. 221,312
Int. Cl. B26d *1/36*; B65h *25/10*
U.S. Cl. 83—65 **12 Claims**

In apparatus wherein a reel of web material is unwound, fed in a substantially linear path by a web feeding means and cut into equal sized sheets by a web cutting means, the improvement comprising means for advancing the web material from the web feeding means to the web cutting means, means for forming a loop in the web material between the web feeding means and said web advancing means, the size of said loop being responsive to the rates of web feed by the web feeding means and the web advancing means, means for de-activating the web advancing means in response to the determination of a predetermined condition downstream thereof, said de-activation of the web advancing means enlarging the loop, means for sensing when the loop reaches a predetermined

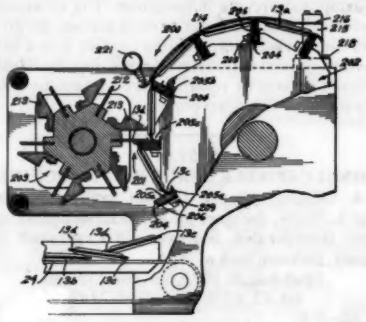


size, and means responsive to the sensing of a loop of predetermined size for controlling the rate of the web feeding means.

3,757,620
CUTTING APPARATUS

Charles E. Cloud, Wilmette, Ill., assignor to Cloud Machine Corporation, Skokie, Ill.

Division of Ser. No. 852,518, May 7, 1969, Pat. No. 3,597,898, which is a continuation-in-part of Ser. No. 504,709, Oct. 24, 1965, abandoned. This application Dec. 21, 1970, Ser. No. 100,254
Int. Cl. B23d *25/12*
U.S. Cl. 83—88 **11 Claims**



An apparatus for cutting or severing articles from a continuous strip of interconnected articles includes a pair of cooperative cutters to slice the strip between adjacent ones of the articles and is characterized by means on one of the cooperative cutters for controlling movement of the severed article during and after the cutting operation to deposit the severed articles onto an underlying surface with one side thereof oriented relative to similar sides of previously severed packages in a preselected manner. The underlying surface may include a conveyor operated at a speed controlled to shingle-stack the severed articles for facilitating further handling.

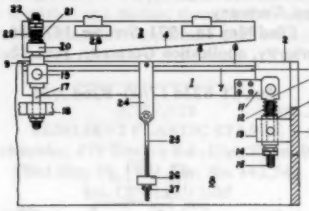
3,757,621
GUILLOTINES AND LIKE SHEARING MACHINES

Emile Breetvelt, Johannesburg, South Africa, assignor to Intermenua (proprietary) Limited, Johannesburg, Transvaal Province, South Africa

Filed Feb. 17, 1971, Ser. No. 116,041
Claims priority, application South Africa, Feb. 20, 1970, 1132; Sept. 15, 1970, 6300; Oct. 5, 1970, 6732
Int. Cl. B26d *1/00*
U.S. Cl. 83—157 **8 Claims**

A guillotine machine for shearing metal, power driven or hand operated, including a yieldable supporting element

located in a resting position adjacent the loading edge of the first blade in the path of the second blade and a biasing mechanism acting to resist displacement of the support from



its resting position as the second blade is advanced over the first blade so that the material cut by the machine is maintained in a flat and untwisted condition requiring no straightening operation.

3,757,622

DEVICE FOR OPENING CONTAINERS IN A STERILE ENVIRONMENT

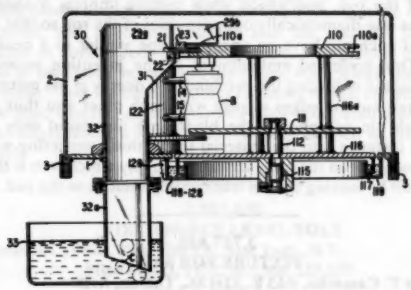
Jean-Luc Berry, Mesnil sur L'Estree, France, assignor to E. P. Remy et Cie, Fenots, Dreux, France

Filed Oct. 12, 1971, Ser. No. 188,078

Claims priority, application France, Dec. 24, 1970, 7046740

Int. Cl. B26d *7/06, 7/18*

U.S. Cl. 83—165 **9 Claims**



Device for opening sealingly closed and internally sterile containers, by cutting a portion of the material of said containers, comprising an enclosure isolated from the ambient atmosphere, means for driving the said containers continuously within the said enclosure, a stationary cutting member placed in the path of said containers, so that the portion thus cut meets the said cutting member, means for discharging the portion thus cut from the said enclosure, and sealing means associated with the said driving means and discharge means, to preclude any communication between the enclosure and the exterior.

3,757,623

DEVICES FOR CUTTING CLAY OR OTHER PLASTIC MATERIAL

Josef Wiewel, Westphalia, Germany, assignor to C. Keller u Co., Laggenbeck/Westphalia, Germany

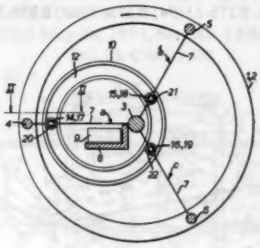
Filed Jan. 6, 1972, Ser. No. 215,831

Claims priority, application Germany, Jan. 8, 1971, P 21 00 819.5

Int. Cl. B26d *4/10*

U.S. Cl. 83—168 **7 Claims**

A device for cutting clay or other plastic material comprises a row of cutter wires mounted for rotation about a fixed axis. A tube extending across the row of wires carries a plurality of wiper bushes through which the wires extend. The tube is



reciprocated along the wires during rotation thereof so as to clear residual clay from the wires.

3,757,624

APPARATUS FOR SEVERING SHEET-LIKE MATERIALS IN MACHINES FOR THE PROCESSING OF SMOKERS PRODUCT

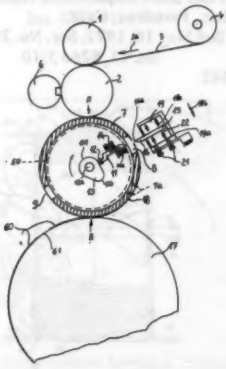
Friedel Kruse, Hamburg; Gunter Wahle, Reinbek; Willy Rudszinat, Dassendorf, and Otto Erdmann, Hamburg, all of Germany, assignors to Hauni-Werke Korber & Co. KG, Hamburg, Germany

Filed May 31, 1972, Ser. No. 258,371

Claims priority, application Germany, June 2, 1971, P 21 27 294.6

Int. Cl. B65h *35/06*

U.S. Cl. 83—271 **13 Claims**



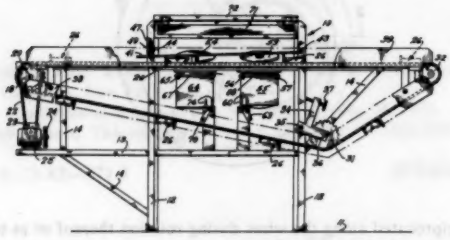
A cutting apparatus for subdividing webs of paper, metallic foil or synthetic plastic material into blanks or uniting bands for use in tobacco processing machines has an intermittently driven hollow drum which is open at one end and is formed with two openings located diametrically opposite each other. The external surface of the drum attracts by suction the leading end of a web which is being withdrawn from a bobbin. A stationary blade is mounted externally of the drum and a second blade is mounted in the interior of the drum opposite the stationary blade. When the drum is at a standstill, one of its openings (which is then overlapped by the leading end of the web to be severed) is located between the two blades. The second blade is then caused (either by an electromagnet or by a rotary cam) to move relative to the stationary blade whereby the cutting edges of the blades cooperate to sever the web overlying that opening which is located between the blades.

3,757,625

APPARATUS FOR MAKING ENGINEERING STAKES

Ray C. Pfenning, No. 2 Terrace Dr., and James E. Caton, P.O. Box 807, both of Helena, Ark.

Filed Nov. 12, 1971, Ser. No. 198,359
Int. Cl. B27b *25/04*; B27m *3/00*; B27b *5/04*
U.S. Cl. 83—404.1 4 Claims



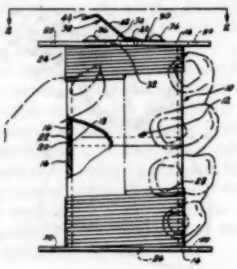
A continuous apparatus for cutting workpieces at different angles including a conveyor with flights thereon which deliver a plurality of workpieces in side-by-side relation to a cutting station, clamping means which engage the workpieces while advancing into the cutting station to hold the same against vertical displacement, and a pair of rotary power saws disposed in sequence in the cutting station with their blades in different angular planes for sequentially cutting the workpieces at different angles. Safety means are provided to enclose the chain and the power saws, with adjustment means being provided in front of the guards to permit angular adjustment of the axis of the power saws from a location remote from the saws.

3,757,626

DEVICE FOR STORING AND DISPENSING RIBBON-LIKE MATERIALS AND THE LIKE

Jack H. Kulp, San Juan Capistrano, Calif., assignor to Royal Industries, Inc., Pasadena, Calif.

Filed May 18, 1972, Ser. No. 254,570
Int. Cl. B26d *5/10*
U.S. Cl. 83—542 12 Claims



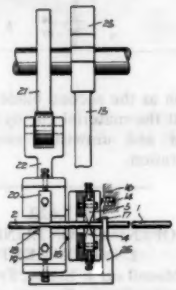
A disposable device for storing and dispensing ribbon-like materials such as tie strips or the like includes a spool shaped to fit in the hand of a user and having a pair of spaced apart flanges for storing a quantity of ribbon-like material therebetween and spaced apart a sufficient distance to allow the spool to be grapsed by hand. A slot is formed in the edge of one of the spool flanges, and a cutting device made of spring metal is rigidly secured to the top of the flange adjacent the slot. The cutting device includes a flat base secured to the flange, and a resiliently bendable, elongated cutting arm integral with a portion of the base and projecting upwardly from the plane of the base to be movable relative to an adjacent edge of the base. In use, a preselected length of the tie strip ribbon is unwound from the spool, drawn through the slot and between the cutting arm and base, and the cutting arm is forced down toward the base to shear off the tie strip.

3,757,627

METHOD AND APPARATUS FOR CUTTING PINS FOR PRODUCING CHAIN LINKS

Gerhard Lange, Reutlingen, Germany, assignor to Wafios Maschinen fabrik Wagner, Ficker & Schmid G.m.b.H., Reutlingen, Germany

Filed May 28, 1971, Ser. No. 147,986
Claims priority, application Germany, June 18, 1970, P 20 29 865.1
Int. Cl. B23d *17/00*; B26d *3/16*
U.S. Cl. 83—558 5 Claims



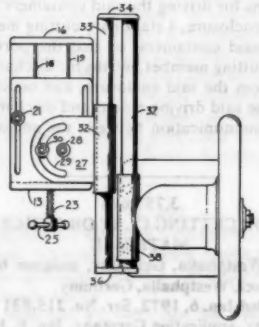
The production of pins which subsequently are to be bent and welded to form chain links, in which each pin is cut off a rod by a pair of equal wedge-shaped blades which are simultaneously reciprocated in opposite directions to each other within a common central plane extending transverse to the axis of the rod, and which while cutting impress V-shaped notches into diametrically opposite sides of the rod so that the ends of each pin have an angular shape similar to a peaked roof. One preferred embodiment of the invention provides that, instead of forcing the two blades so deeply in the material that their cutting edges engage with each other and thus cut off each pin completely, the blades are impressed only for such a distance into the material that a thin connecting web-remains between the pin and the rod supply which web is then shorn off by moving the pin transversely relative to the rod.

3,757,628

FIXTURE FOR SAW

George T. Camacho, 443 E. 31st St., Tucson, Ariz.

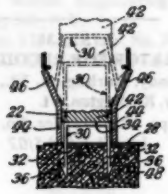
Filed May 1, 1972, Ser. No. 249,357
Int. Cl. B27b *9/04*, *5/20*
U.S. Cl. 83—745 4 Claims



An adjustable box having open sides and expandable ends is slipped over the end of a rafter which is to be cut to length. After the box is placed it is clamped to the rafter. The box carries an adjustable angle plate to which is fastened a tube. A bar

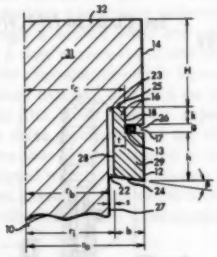
sliding in this tube is secured at its ends to a second, parallel, bar which in turn carries a second sliding tube. This second tube has provision for fastening to a portable electric circular saw. After the fixture has been clamped to a rafter and set at the required angle and to the place marked for cutting, the attached saw is started and pushed through the rafter, cutting it off. Thus any requirement for scribing and following a cutting line is eliminated.

3,757,629
RESILIENT PLASTIC STAPLE
Robert J. Schneider, 479 Geneva Rd., Glen Ellyn, Ill.
Filed May 10, 1971, Ser. No. 141,746
Int. Cl. F16b *15/08*
U.S. Cl. 85—49 **8 Claims**



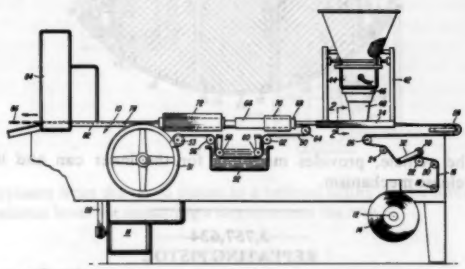
A fastener or staple is formed of a resilient plastic material which has an elastic memory. The staple has legs, a crown integrally joining the legs, and retaining means such as barbs on the legs. The staple is formed so that normally the legs of the staple are non-parallel. The staple legs are displaced while being driven into the material to be stapled so that the legs are parallel, and after being driven into the material the legs return or tend to return to their normal non-parallel position due to the elastic memory of the plastic from which the staple is made. Thus the barbs or other retaining means are biased by the legs, which tend to return to their non-parallel position, into engagement with the material being stapled to retain the staple.

3,757,630
FIXED FORCE LEVEL BOLT
Norman C. Dahl, 78 Irving Pl., New York, N.Y.
Filed Feb. 3, 1972, Ser. No. 223,259
Int. Cl. F16b *31/02*
U.S. Cl. 85—62 **11 Claims**



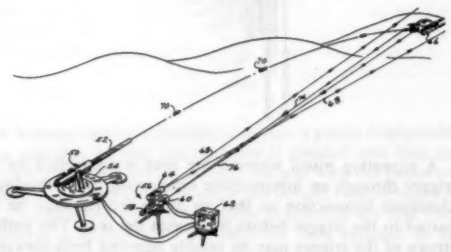
A bolt including a bolt head which bolt head is characterized by a depending ring-like extension therefrom. The extension has an inner surface spaced apart from the outer surface of the bolt to define a cylindrical radial clearance therebetween. An annular external groove is formed in the outer peripheral wrenching surface of the bolt head extension to define an annular section which plastically deforms radially inward when a predetermined force acts on the bolt with the resultant reduction of the axial width of the external groove.

3,757,631
METHOD AND APPARATUS FOR MANUFACTURING SPARKLERS
Hugh D. McManus, Bolivar; Voorhis F. Wigal, and Robert S. Long, both of Jackson, all of Tenn., assignors to Kilgore Corporation, Toone, Tenn.
Filed May 24, 1971, Ser. No. 146,363
Int. Cl. C06d *1/08*
U.S. Cl. 86—20 R **8 Claims**



A method and machine for producing sparklers in solid rod form enwrapped in a paper or other combustible material casing from powdered pyrotechnic material which is dispensed onto an arcuated paper web which is drawn through a heated tubing and thence onto a wet belt of fabric, the paper web and contents being drawn by said belt through a garniture wherein the belt wraps around the paper web and contained material to form a rod shape after which the belt is stripped therefrom and the rod is severed into desired lengths.

3,757,632
AMMUNITION TRACER SYSTEM
Spencer Lawrence Bellinger, Lake Luzerne, N.Y., assignor to General Robotics, Inc., Lake Luzerne, N.Y.
Filed Sept. 28, 1970, Ser. No. 75,979
Int. Cl. F41f *5/00*
U.S. Cl. 89—1 R **6 Claims**

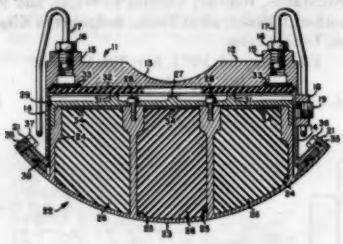


An ammunition tracer system having a retro-reflective trailing edge on all projectiles and a laser illuminator bore-sighted with the weapon sighting and viewing equipment. At the sighted target, the reflective trailing edge of the projectile reflects the laser rendering the projectile visible in the viewing equipment.

3,757,633
VISUAL MARKER SYSTEM
Paul K. Salzman, Long Beach, and Paul R. Studer, Jr., Yucaipa, both of Calif., assignors to The United States of America, as represented by the Secretary of the Navy, Washington, D.C.
Filed Dec. 30, 1971, Ser. No. 214,249
Int. Cl. B64d *1/04*
U.S. Cl. 89—1.5 R **6 Claims**

A pyrotechnic device for rapid delivery of a chemical payload by an aerial vehicle has a double container construc-

tion. An inner can carries the pyrotechnic chemical and releasable lid therefor. An outer can, attached to the hull of



the vehicle, provides mounting for the inner can and its release mechanism.

3,757,634

REPEATING PISTOL

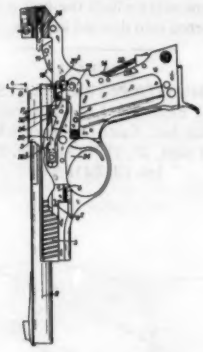
Jose Maria Uria, 13 rue de Santiago, and Antoine Georges Uria, 6 rue delattre de Tassigny, both of Hendaye-Basses-Pyrenees, France

Filed July 21, 1970, Ser. No. 56,914

Claims priority, application France, July 21, 1969, 6924117

Int. Cl. F41c *5/00, 19/00*

U.S. Cl. 89—145 **8 Claims**



A repeating pistol wherein the sear is controlled by the trigger through an intermediate connecting link providing a clearance connection so that an idling motion may be imparted to the trigger before it releases the sear. The path or stroke of the trigger may be readily adjusted both forwardly and rearwardly independently of the adjustment of the pressure to be overcome when triggering. A manually operable lever is provided for lowering the intermediate connecting link so as to thereby disconnect the sear with respect to the trigger.

3,757,635

MULTI-PURPOSE MUNITIONS CARRIER

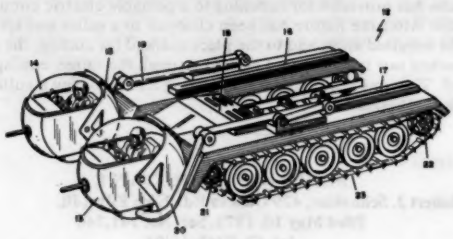
Frederick R. Hickerson, P.O. Box 540, R.D. 4, Newton, N.J., and Andrew J. Marhefka, 246 Center St., Landing, N.J.

Filed Mar. 23, 1971, Ser. No. 127,298

Int. Cl. F41h *7/02*

U.S. Cl. 89—36H **5 Claims**

A multipurpose munitions carrier comprising: a basic automotive tracked vehicle having extendable arms, a central recess, and a first attachment means along the sides and edges of said recess; an interchangeable central assembly, said assembly insertable into said central recess and having a second attachment means, said second attachment means complementary and firmly securable to said first attachment means; and detachable personnel capsules, each of said capsules rotatably attached individually to the end of said extendable arms of said tracked vehicle, and each capsule having independent control means whereby all functions of said multipurpose munitions carrier can be regulated by the operator of either capsule.



3,757,636

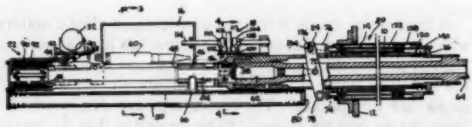
BOLT ACCELERATOR FOR RECOIL OPERATED GUN

Robert E. Chiabrandy, Burlington, Vt., assignor to General Electric Company, Burlington, Vt.

Filed Apr. 19, 1972, Ser. No. 245,508

Int. Cl. F41d *5/02*

U.S. Cl. 89—169 **7 Claims**



A single barrel gun has a short recoil system of operation and a bolt accelerator which includes the barrel drive spring and barrel buffer spring as a part of its operating mechanism.

3,757,637

DEVICE FOR THE AUTOMATIC REPLACEMENT AND ADJUSTMENT OF TOOL CARRIERS, MORE PARTICULARLY ANGULAR MILLING HEADS ON THE MILLING SUPPORT OF A MACHINE TOOL

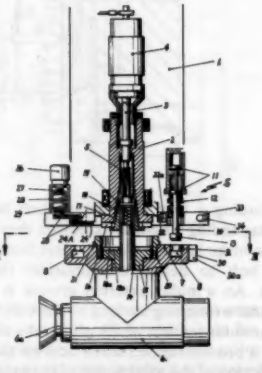
Edmund Eich, Sauerbruchstr. 8, Coburg; Walter Muller, Schulstr. 8, Weitramsdorf, and Bruno Fritsch, joh Lindun Str. 681vt, Trenchtlingen, all of Germany

Filed Sept. 13, 1971, Ser. No. 179,783

Claims priority, application Germany, Sept. 15, 1970, P 20 45 604.6

Int. Cl. B23d *1/12, 9/00*

U.S. Cl. 90—17 **18 Claims**



A device for the automatic replacement and adjustment of tool carriers, such as angular milling heads on a milling sup-

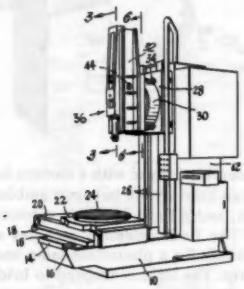
port on a machine tool. A drawbar is axially slidably and rotatably mounted in the milling spindle. A base plate is provided for closing the milling support at the free end of the milling spindle. A tube is connected to the tool carrier and is secured to the free end of the drawbar. A fixing flange is provided on the tool carrier and extends parallel to the base plate. A fixing arrangement is provided between the fixing flange and the base plate for fixing the tool carrier in a predetermined angular position relative to the milling support. A plurality of clamping arrangements are mounted on the base plate and cooperate with the fixing flange.

3,757,638

FIVE-AXIS SHAPER

Joseph Martin, c/o Martin Engineering Co. Inc., 167-17 Northern Blvd., Bayside, N.Y.

Filed Apr. 12, 1972, Ser. No. 243,307
Int. Cl. B23d *3/00*; B23b *47/20, 47/26*
U.S. Cl. 90—46 **15 Claims**



A heavy-duty combination vertical and horizontal metal-cutting shaper constituted of a machine bed provided at its back with a massive upright column having two vertical ways traversed by a saddle. The machine bed has ways on which a second saddle travels, the latter in turn mounting a carriage which supports a turnable table. On the saddle supported by the column there is a swivel head that carries an elongate housing, in which reciprocate a heavy counterweight-type slider and a ram, respectively movable in adjoining parallel paths. The ram, which carries the tool bit, is coupled to the slider by a drive mechanism comprising racks and gears. The slider is driven through a Scotch yoke and set of elliptical gears whereby it has a slow movement in one direction and a rapid movement in the opposite direction. Between the gears and Scotch yoke a shaft extends, disposed on the axis of the swivel head whereby the latter can be adjustably turned without affecting the drive mechanism of the slider and ram. The machine thus has two axes associated with the column, and three axes associated with the bed, making a total of five altogether. The slider, comprising in effect a counterweight, eliminates excessive vibrations at the working speeds.

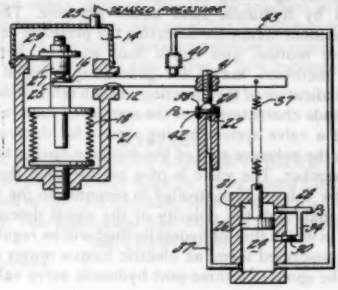
3,757,639

NEGATIVE HYDRAULIC RATE DEVICE

James A. Baum, Enfield, Conn., and Charles F. Stearns, East Longmeadow, Mass., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation of Ser. No. 52,162, July 6, 1970, abandoned.
This application Jan. 12, 1972, Ser. No. 217,129
Int. Cl. F15b *9/02*
U.S. Cl. 91—47 **2 Claims**

A force change from an input load on a force balance lever of a hydraulic servo system is augmented by an additional force indicative of a change in servo pressure by porting servo



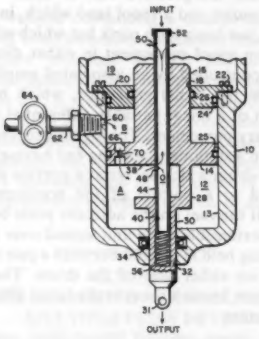
pressure from the servo piston to a bellows acting on the force balance lever for imparting a negative rate thereto.

3,757,640

SIMPLIFIED FOLLOWER SERVOMECHANISM

Joseph A. Karol, Orange, Conn., assignor to Avco Corporation, Strafford, Conn.

Filed Dec. 1, 1971, Ser. No. 203,550
Int. Cl. F15b *13/04, 9/10, 15/17*
U.S. Cl. 91—49 **2 Claims**



A follower servomechanism comprises a piston displaceable in a chamber so that the chamber is divided into first and second compartments. A plunger integral with the piston extends out of the housing through the second compartment so that the effective area of the piston exposed to the first compartment is greater than the effective area exposed to the second compartment. A tube telescoped into a bore through the piston has a port which registers with a surface exposed to the first compartment to form a variable area orifice. A source of pressurized fluid is applied to the second compartment and a bleed passage in the piston connects the first and second compartments. A displacement of the tube relative to the piston causes a variation in the flow from the first compartment and its pressure, thus causing the piston to accurately follow the displacement of the force tube.

3,757,641

CONTROL SYSTEM FOR SYNCHRONIZING MOVEMENT OF DRIVEN MACHINE MEMBERS

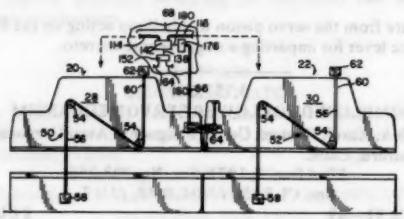
John R. Goff, Oak Forest, Ill., assignor to Dreis & Krump Manufacturing Company, Chicago, Ill.

Filed Dec. 15, 1971, Ser. No. 208,380
Int. Cl. F15b *11/22*
U.S. Cl. 91—171 **10 Claims**

A control system for synchronizing movement of two hydraulically actuated, individually driven and leveled

machine members. Preferably, the control unit is used with a pair of hydraulically operated press brakes or other like machines having reciprocable rams which are advanced and retracted by hydraulic fluid under pressure. The control system includes means for detecting the presence and amount of relative motion, and hence lead and lag, between the machine members, means for generating a signal having a polarity indicative of the direction of such relative motion and an amplitude characteristic of the amount of such relative motion, and a valve system having means for decreasing fluid flow into the pressure side of the machine having the leading driven member. The valve is of a proportional flow type in which flow volume is controlled in response to the amplitude of the signal, and, the polarity of the signal determines the machine in which flow of hydraulic fluid will be regulated.

In the described form, an electric torque motor is used to control the spool of a three-port hydraulic servo valve having



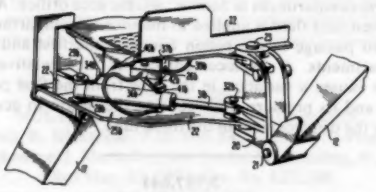
one inlet line from the pressure side of each of the press brakes, a center outlet and a spool land which, in the neutral position thereof, just loses both parts but which will open one or the other upon spool movement in either direction. The torque motor is controlled by an associated amplifier receiving a signal from the signal generator, which is in a form analagous to that of a linear variable differential transformer arranged for rotary movement. The signal generator includes a field disposed in a stationary housing and having a rotary armature, with the drum which serves as a portion of the detector being affixed to a portion of the armature shaft and disposed adjacent the ram on the adjacent press brake, with a flexible but non-extensible drive unit wound over a portion of the drum and being held in tension between a pair of mounting points disposed on either side of the drum. The individual level control system in each press brake is not affected by the synchronizing system.

3,757,642

SWING MECHANISM FOR PIVOTED MEMBER

Kenneth W. Schuermann, Perry, Okla., assignor to The Charles Machine Works, Inc., Perry, Okla.

Filed Nov. 24, 1971, Ser. No. 201,936
Int. Cl. F01b *1/00, 15/04*
U.S. Cl. 91—176 **21 Claims**



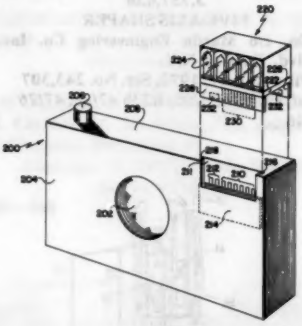
A backhoe mounted on a wheeled vehicle and having a mechanism for swinging the backhoe boom structure to positions on either side of a central axis. The swing mechanism comprises a pair of expansible chamber motors and a valve means associated with each motor for controlling the flow of pressurized fluid thereto. Each motor is pivotally connected at one end to the vehicle frame and at the other end to the boom structure. Each valve means comprises a valve body fixedly attached to the vehicle frame and having a valve chamber with suitable connections to the source of pressurized fluid and the motor, a rotatable valve partition in the valve chamber, and an actuator arm for rotating the partition pivotally attached to the respective motor. As the motors opeate to swing the boom, pivotal movement of each motor results in coordinated rotation of the valve partitions to control the flow of pressurized fluid through each of the valves.

3,757,643

PHOTOFLASH APPARATUS

John P. Burgarella, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 31, 1972, Ser. No. 222,258
Int. Cl. G03b *15/03*
U.S. Cl. 95—11 R **42 Claims**



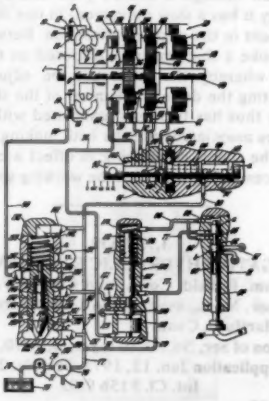
A flash socket assembly for use with a camera having an exposure control circuit convertible between ambient and flash modes of operation, and a flash assembly especially adapted for use therewith. The flash assembly includes a connector having a set of terminals for a photoflash lamp and an electrically conductive strip. The strip is adapted to bridge a pair of spaced contacts in the socket assembly to convert the exposure control circuit of the camera from an ambient mode of operation to a flash mode of operation upon coupling the flash assembly to the socket assembly.

3,757,644

FLOW CONTROLLED CONTROL SYSTEM FOR MOTORS

Keith A. Bailey, Speedway, and Jerry R. Marlow, Greenwood, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 21,950, March 23, 1970, Pat. No. 3,682,043. This application June 5, 1972, Ser. No. 259,464
Int. Cl. F15b *11/16*
U.S. Cl. 91—411 R **8 Claims**



A flow controlled motor control system used to control a transmission torque converter lockup clutch in response to

fluid motor operation to establish the transmission ratio drives. The controls have a shift motor system including a shift valve selectively supplying each fluid motor with shift apply and leakage make-up flow to establish and maintain a selected ratio drive, a lockup clutch valve to engage the lockup clutch and a flow valve tripped by a fast change in flow rate on initiating shift flow to disengage the lockup clutch and permitting slow changes in the leakage flow rate without tripping. These flows pass through a restriction providing a differential pressure which selectively actuates a trip control and the response control of the flow valve. The slowly increasing leakage flow rate actuates the response control which increases the size of the restriction or the return biasing force to permit slowly increased leakage flow without actuating the tripping control to trip the flow valve. The response control is unresponsive to the rapid increase of the shift flow rate which only actuates the tripping control to trip the flow valve.

3,757,645

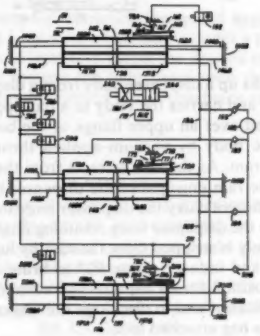
AUTOMATIC SHEARING METHOD AND APPARATUS

Gerald V. Roch, Indianapolis, Ind., assignor to Hurco Manufacturing Company, Inc., Indianapolis, Ind.

Division of Ser. No. 42,047, June 1, 1970, Pat. No. 3,691,887. This application Sept. 7, 1972, Ser. No. 286,958

Int. Cl. F15b *11/16*

U.S. Cl. 91—411 R **10 Claims**



Two pairs of shears disposed at right angles and operable simultaneously, shear a sheet along intersecting lines simultaneously, the sheet being held and located by a power-driven positioning carriage. Each blank is cut to finished size, and various operational modes are available.

3,757,646

SAFETY CIRCUIT FOR A WORKING CYLINDER

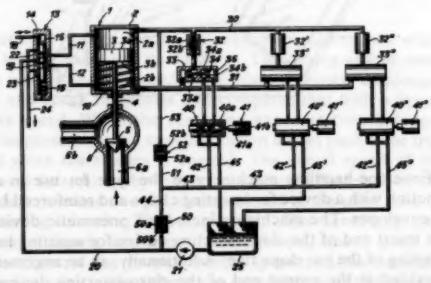
Rudolf Rohner, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed May 11, 1971, Ser. No. 142,192

Claims priority, application Switzerland, May 21, 1970, 7514/70; Jan. 6, 1971, 101/71

Int. Cl. F15b *11/08*, *13/043*

U.S. Cl. 91—438 **3 Claims**



Upon reception of a safety signal, the power amplifier in the form of a control valve communicates the pressure fluid duct with the non-return valve piston to open the non-return valve. This allows a flow between the upper working cylinder chamber and the lower cylinder chamber so that the piston is moved into a safety position. Should the pressure in the fluid duct be insufficient, the power amplifier is switched into communication with the upper working cylinder to cause the non-return valve to open. This also allows a flow between the two cylinder chambers.

3,757,647

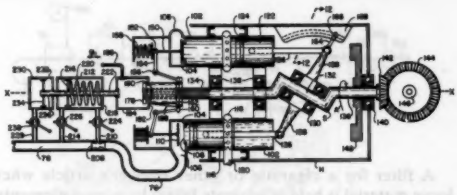
COMBINED LAND AND AIR VEHICLE

John Abramopaulos, 24-29 42nd St., Long Island City, N.Y.

Division of Ser. No. 823,639, May 12, 1969, Pat. No. 3,612,441. This application Apr. 14, 1971, Ser. No. 135,458

Int. Cl. F01b *1/00*

U.S. Cl. 91—482 **14 Claims**



A land air vehicle comprising a chassis in which is journalled a pair of front steerable wheels and rear driven wheels, a superstructure mounted to said chassis journalling a helicopter rotor assembly, a compressor for creating a supply of pressurized air, a pneumatic motor coupled to the rear wheels, which motor is driven by the compressed air, and a jet propulsion system coupled to the rotor assembly also driven by said compressed air. The vehicle includes control means for selectively operating one or the other of the pneumatic motor or jet propulsion system in manual or automatic operation.

3,757,648

PRESSURE BALANCING ARRANGEMENT FOR A MULTIPLE FLOW DEVICE

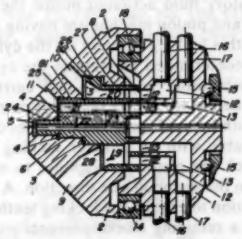
Karl Eickmann, 2420 Isshiki Hayama-machi, Kanagawa-ken, Japan

Filed Mar. 21, 1972, Ser. No. 236,596

Claims priority, application Austria, Apr. 2, 1971, A 2856

Int. Cl. F01b *13/06*

U.S. Cl. 91—485 **12 Claims**



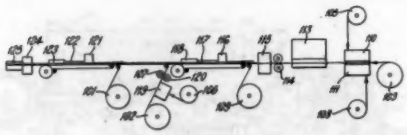
A multiple flow fluid handling device includes a rotor having a rotor end face with rotor ports which cooperate with the control ports of a stationary control end face of a control body. The control body has cylindrical portions slidingly fitting into cylindrical eccentric pressure chambers of a stationary closure means. The eccentric pressure chambers communicate with high pressure passages in the closure means,

and the pressure in the cylindrical pressure chambers produce a resultant force which presses the control end face against the rotor end face and compensates the pressure forces urging the control body away from the rotor.

3,757,649
SMOKE FILTERS

Francis Auguste Maurice Labbe, Neuilly-sur-Seine, France, assignor to Molins Machine Company Limited, London, England

Division of Ser. No. 880,747, Nov. 28, 1969, abandoned. This application Oct. 13, 1971, Ser. No. 188,874
Claims priority, application Great Britain, Dec. 4, 1968, 57703/68; June 27, 1969, 32625/69
Int. Cl. B31c *5/00*
U.S. Cl. 93—1 C **5 Claims**

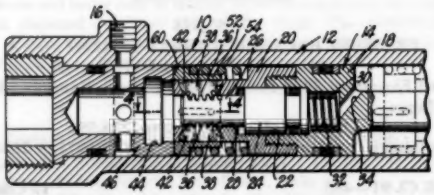


A filter for a cigarette or other smoker's article wherein loose material is held in separate layers by porous elements arranged between the layers and so arranged that smoke passing from one end of the filter to the other is constrained to pass across and through said layers in succession.

3,757,650
RECIPROCATORY FLUID ACTUATED MOTOR HAVING A RACK AND PINION PISTON LOCKING MECHANISM

Nicholas DeKiss, North Hollywood, Calif., assignor to DeLaval Turbine, Inc., Princeton, N.J.

Filed Feb. 22, 1972, Ser. No. 227,784
Int. Cl. F15b *15/26*
U.S. Cl. 92—25 **12 Claims**



A reciprocatory fluid actuated motor the piston of which carries a rack and pinion mechanism having locking elements engageable with a locking element on the cylinder to lock the piston in a predetermined position in the cylinder. The rack and pinion mechanism comprises a rack carried by and movable axially of the piston, pinion segments carried by the piston and meshed with the rack, and locking teeth on the pinion segments engageable with an annular locking shoulder in the cylinder to lock the piston in response to movement of the rack relative to the piston in one direction. A spring biases the rack in a direction to engage the locking teeth with the locking shoulder, and a retaining sleeve prevents engagement of the locking teeth with the locking shoulder until the piston approaches its locked position. Fluid pressure releases the lock when this is desired.

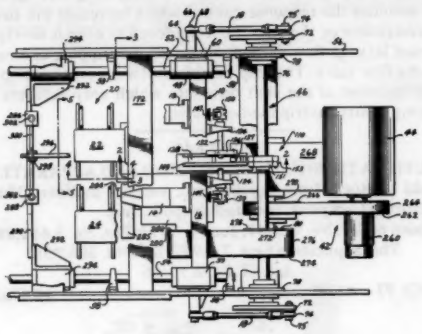
ERRATUM

For Class 93—36 see:
Patent No. 3,757,649

3,757,651
APPARATUS FOR ADVANCING AND RETRACTING A DISPENSER BODY TO AND FROM A BAG APPLICATOR

Roger K. Bruce, Mission Viejo, and Werner Marhold, Huntington Beach, both of Calif., assignors to Sterigard Corporation, Santa Ana, Calif.

Filed Apr. 13, 1972, Ser. No. 262,232
Int. Cl. B31b *7/00, 1/52*
U.S. Cl. 93—36.01 **40 Claims**

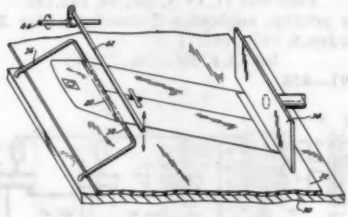


A ram picks up a dispenser body from a dispenser body feed and indexer and carries the body to a bag applicator, where a bag is applied over an upper flange of the body and is drawn inside of the body by vacuum applied through an indexing head of the ram. As the ram retracts from the bag applicator, fingers of the ram engaged to the dispenser body over a bottom flange thereof carry the dispenser body to the feed and indexer where the dispenser body retaining fingers open and the dispenser body is stripped from the ram by lugs. Index wheels of the feed and indexer rotate 90° to bring a new dispenser body into position for its capture and advance by the ram to the bag applicator, and to discharge the dispenser body which has just had a bag attached to it.

3,757,652
ENVELOPE HANDLING AND MANUFACTURING MACHINERY

Marvin Molnester, 47 Winesap Ln., Monsey, N.Y., and Allen Molnester, 706 Sherwood St., North Woodmere, N.Y.

Filed Feb. 4, 1972, Ser. No. 223,593
Int. Cl. B31b *1/52*
U.S. Cl. 93—61 R **7 Claims**

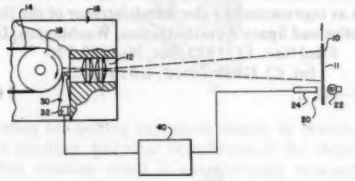


Envelope-handling machinery of the type for use in conjunction with a device for inserting clasps and reinforced holes in envelopes. The machinery includes a pneumatic device at the insert end of the clasp inserting device for assisting in the opening of the envelope flap. Additionally, an arrangement is provided at the output end of the clasp-inserting device for folding the flap of the envelope to the closed position.

ERRATUM

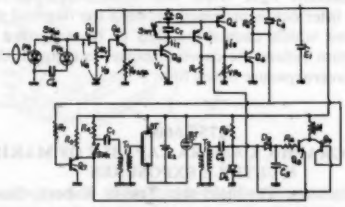
For Class 95—11 see:
Patent No. 3,757,643

3,757,653
FILM MARKING SYSTEM
Richard E. Albrecht, and Terrence L. Reeder, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 26, 1971, Ser. No. 192,132
Int. Cl. G03b *17/24*
U.S. Cl. 95—1.1 4 Claims



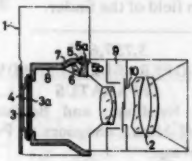
An optical system for restricting the spread angle of a light beam and placing a mark on a film that includes a prism which transmits only those light rays within the desired spread angle and a lens which focuses the light beam onto the film. The prism and lens may be formed into a one-piece molded light pipe.

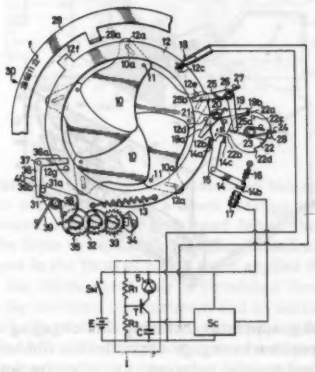
3,757,654
CAMERA HAVING AUTOMATIC EXPOSURE AND AUTOMATIC FLASH CONTROLS
Chiharu Mori, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 10, 1972, Ser. No. 242,593
Claims priority, application Japan, Apr. 19, 1971, 46/25162
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CE 12 Claims



A shutter timing circuit automatically determines when flash will be used and its duration. The timing circuit computes proper shutter speed using film sensitivity, diaphragm valve and scene brightness and compares that with a preset shutter speed. When the computed exposure time is longer that the preset time, an enabling circuit allows flash to be triggered when the shutter is opened. The actual speed of the shutter is determined by the timing circuit. If flash is used, the flash is terminated and the shutter closed at the same time by the timing circuit. The diaphragm, film sensitivity and brightness inputs are logarithmically compressed prior to computation of the proper shutter speed and the resultant computed valve is logarithmically expanded prior to timing of the exposure.

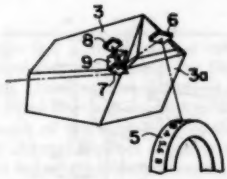
3,757,655
ELECTRONICALLY CONTROLLED CAMERA SHUTTER
Tatsuo Kobayashi, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Dec. 16, 1971, Ser. No. 208,778
Int. Cl. G03b *7/08, 9/24*
U.S. Cl. 95—10 CE 19 Claims





An electronically controlled shutter comprises a braking mechanism for braking the movement of a sector opening member so as to open the shutter diaphragm sectors at a lower speed than when they are closed, a diaphragm setting member for manually setting the diaphragm aperture value and a photoreceptor for measuring the light reflected from the film surface so as to automatically control exposure by integrating the output of the photoreceptor. The shutter further includes a mechanism for selectively enabling or disabling the braking mechanism, whereby the shutter is adapted for both programming exposure and diaphragm preset exposure.

3,757,656
SINGLE LENS REFLEX CAMERA
Yoshio Kuramoto, Toyonaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan
Filed Nov. 15, 1971, Ser. No. 198,519
Claims priority, application Japan, Nov. 17, 1970, 45/113535
Int. Cl. G03b *19/20*
U.S. Cl. 95—11 V 4 Claims



A single lens reflex camera having a pentagonal prism view finder is provided with an additional prism disposed on the

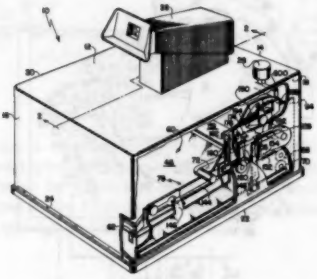
roof-type reflection surface of the pentagonal prism. The light rays from exposure condition information indicating devices such as a diaphragm opening indicator and a range finder may be caused to fall upon the pentagonal prism, through the additional prism. The light rays are reflected on the front lower reflection plane of said pentagonal prism which directs the rays to an eyepiece so that the exposure condition information is visible in the vision field of the finder.

3,757,657

MANUALLY OPERABLE FILM-ADVANCING APPARATUS

Vaito K. Eloranta, Needham, and Benjamin C. Ruggles, Gloucester, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 27, 1972, Ser. No. 238,083
Int. Cl. G03b *17/52*
U.S. Cl. 95—13 **10 Claims**



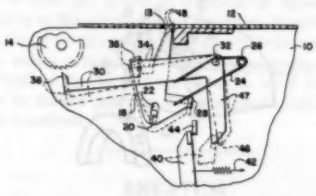
Photographic apparatus including film-engaging apparatus mounted in position to engage a thin, flexible film unit near its trailing end and move it, subsequent to exposure, into the bite of a pair of pressure-applying members. The pressure-applying members rupture a container of processing liquid located near a leading end of the film unit and spread the processing liquid across a photo-sensitive element of the film unit while simultaneously continuing the movement of the film unit toward the exterior of the photographic apparatus. The film-engaging apparatus and at least one of the pressure-applying members are driven by a manually operated crank. Rotation of the crank is limited, by a pivotally mounted stop, to that which is necessary to advance the exposed film unit out of engagement with the pressure-applying members. The stop is temporarily rendered inoperative by actuation of a shutter release button to enable rotation of the crank to advance the next succeeding exposed film unit. Rotation of the crank, subsequent to actuation of the shutter release, is effective to recock the shutter of the photographic apparatus.

3,757,658

FILM METERING MECHANISM FOR CAMERAS

Jeffrey R. Stoneham, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 24, 1972, Ser. No. 256,553
Int. Cl. G03b *1/62*
U.S. Cl. 95—31 FM **6 Claims**



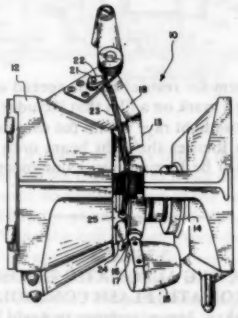
A camera for perforated roll film includes transport means for advancing the film along an exposure plane, a metering lever biased toward an active position to disable the transport means, and a film sensing member for detecting the arrival of a perforation at a predetermined position to permit movement of the metering lever to its active position. Means associated with the sensing pawl and the metering lever hold the sensing pawl in the perforation until metering is effected and thereupon permits movement of the sensing pawl out of the perforation.

3,757,659

EXPOSURE INTERLOCK FOR OSCILLOSCOPE CAMERAS

Cary R. Spitzer, Williamsburg, and Jerry D. Stainback, Newport News, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 11, 1971, Ser. No. 197,870
Int. Cl. G03b *19/12*; G01d *9/42*
U.S. Cl. 95—42 **2 Claims**



An exposure interlock for oscilloscope cameras which cuts off ambient light from the oscilloscope screen before the shutter of the camera is tripped. A flap is provided which may be selectively positioned to an open position which enables viewing of the oscilloscope screen and a closed position which cuts off the oscilloscope screen from view and simultaneously cuts off ambient light from the oscilloscope screen. A mechanical interlock is provided between the flap and shutter trip structure which causes the flap to be activated to its closed position before the camera shutter is tripped, thereby preventing overexposure of the film.

3,757,660

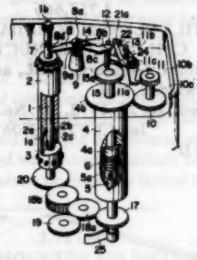
PHOTOGRAPHIC CAMERA CAPABLE OF MAKING MULTIPLE EXPOSURES

Yoshio Kuramoto, Toyonaki-shi; Toshio Kobori, Osaka-fu, and Hiroshi Ueda, Nara-ken, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan

Filed Dec. 22, 1972, Ser. No. 317,819
Int. Cl. G03b *17/42*, *19/04*, *15/00*
U.S. Cl. 95—31 AC **8 Claims**

A photographic camera capable of making multiple exposures on a single film frame, the camera being of the type in which the advance of a single frame of film and the cocking of the shutter are effected by a single winding operation. The camera is provided with a first gear member rotatable for transmitting the rotary movement of the winding operation to a cocking member of the shutter, a second gear member rotatable for transmitting the rotary movement of the winding operation to a film winding spool through a friction clutch means, a third gear member rotatable for transmitting the rotary movement of the winding operation to a film transporting sprocket by way of a clutch means, a push button member ac-

tuatable for disconnecting the clutch means, and a blocking member for maintaining the clutch means in the disconnected condition and blocking the rotation of the film winding spool in the forward film winding direction against the action of the friction clutch means. The camera may be placed in a condi-



tion ready for double exposures simply by pressing the push button member, and after completion of the shutter cocking, the film winding spool is automatically relieved from the blocking action of the blocking member and the clutch is connected for associating the shutter cocking mechanism again with the film winding mechanism.

3,757,661

MOVABLE MIRROR ARRANGEMENT IN A SINGLE-LENS REFLEX CAMERA

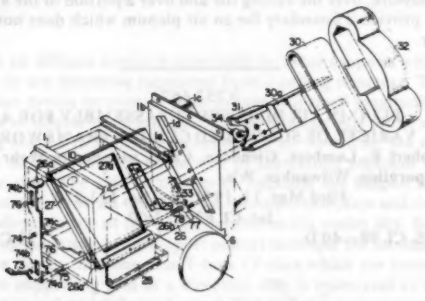
Kohei Ochiai, Tokyo, and Kiyoakira Kato, Chiba-ken, both of Japan, assignors to Olympus Optical Company, Tokyo, Japan

Filed Nov. 10, 1971, Ser. No. 197,380

Claims priority, application Japan, Nov. 16, 1970, 45/100838

Int. Cl. G03b *19/12*

U.S. Cl. 95—42 **19 Claims**



In a camera of the single-lens reflex ground-glass focusing type, a mirror is positioned in an inclined position on the optical axis of the taking lens and between the lens and a location for a photosensitive surface. When an exposure is taken with the camera, the mirror is retained in the inclined position and is moved transversely out of the optical axis along a rectilinear path into a standby position. In the standby position a portion of the mirror is located within a housing which extends laterally from the camera body. The housing also acts as a grip for holding the camera. The housing is telescopically constructed so that it can be pulled outwardly from or pushed inwardly into the camera. When the housing is pulled outwardly, the camera is in the operating condition and when the housing is pushed inwardly the camera is in the non-operating condition. The member for operating the camera shutter is operatively connected to the housing so that the member is automatically locked when the camera is in its non-operating condition.

3,757,662

APPARATUS FOR THERMIC DEVELOPMENT OF HEAT-SENSITIVE PAPER

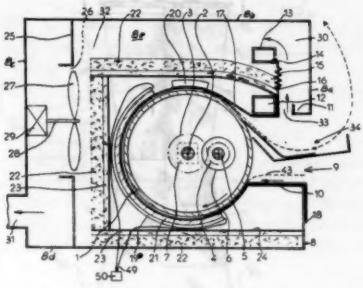
Francis Ingels, 29, rue des Rossignols, Saint Andre, France

Filed Jan. 8, 1971, Ser. No. 105,019

Claims priority, application France, Jan. 8, 1970, 7000652

Int. Cl. G03d *3/00*

U.S. Cl. 95—89 R **11 Claims**



Apparatus for thermic development of heliographic paper and diazo copies comprises a drum rotating in an insulated compartment, a stationary tensioned fabric sheet extending around the drum to hold the copy against the drum and a heating element in the form of a thin sheet applied directly to the drum or the fabric sheet. Air is circulated through a space between the insulated compartment and an outer housing, entering at the front of the housing at an opening through which paper is fed to and discharged from the drum, passing over the top of the insulated compartment and being discharged at the rear of the housing.

3,757,663

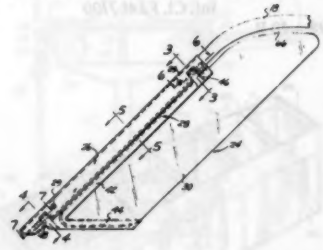
WINDOW VENT

Raymond A. McCarroll, 1725 Newcastle, Grosse Pointe Woods, Mich.

Filed Mar. 24, 1972, Ser. No. 237,645

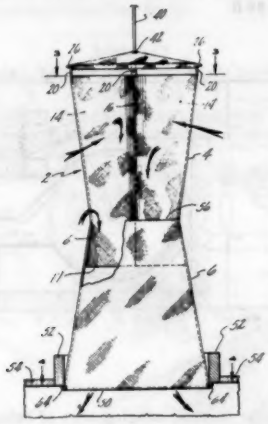
Int. Cl. B60r *27/00*; B60h *1/24*

U.S. Cl. 98—2.12 **11 Claims**



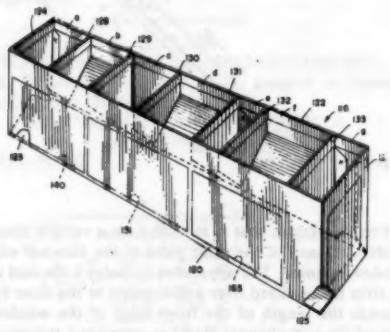
Vent apparatus that is mounted on a vehicle door and extends outboard of the door glass at the forward edge of the window opening. The apparatus includes a die cast ornamental strip that is fitted over and secured to the door frame that extends the length of the front edge of the window. An L-shaped die cast channel member supports a transparent plate and the upright leg of the channel member is hingedly connected to the strip adjacent to the upper and lower ends thereof. An adjustable torque device is incorporated in the hinge connection to retain the transparent plate at a desired angular relation with respect to the door glass.

3,757,664
CLOTH VENTILATOR
Domina C. Jalbert, 170 N. W. 20th St., Boca Raton, Fla.
Filed June 20, 1972, Ser. No. 264,609
Int. Cl. F24f 17/02
U.S. Cl. 98—37 7 Claims



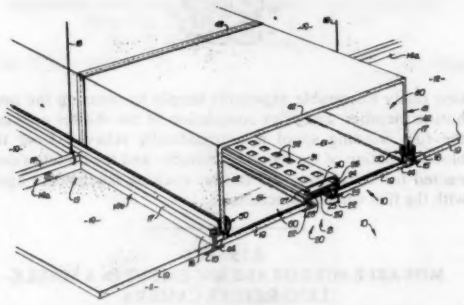
A cloth ventilator having an upper half formed of an X cross-section and a lower half formed as a diffuser of square cross-section, said part of X cross-section extending into said part of square cross-section. The bottom of said cloth ventilator having means for holding it open and fixing it within a hatchway and the top of said ventilator having means for supporting said X cross-section so that a wind can blow into said ventilator from any direction and be directed downwardly into said bottom section. Said ventilator has a top which is spaced from the top of said X cross-sectional portion so that a gust of wind can pass therebetween and not place too great a strain on the material, the top having a support rope connected to a support on a mast above the deck of a boat.

3,757,665
PLENUM CONSTRUCTION
Jess Lee Coplin, Fort Worth, Tex., assignor to Lennox Industries Inc., Marshalltown, Iowa
Filed Dec. 27, 1971, Ser. No. 212,292
Int. Cl. F24f 7/00
U.S. Cl. 98—40 R 8 Claims



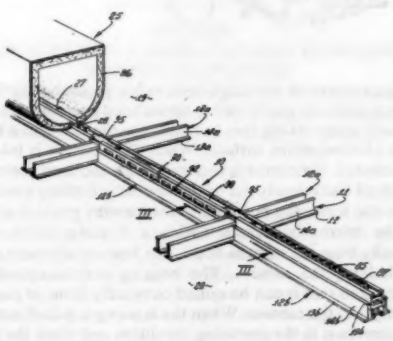
A plenum construction for receiving air from an air treating unit and distributing same to a plurality of zones to be treated. The plenum construction comprises a housing having wall means therein defining at least a pair of adjacent chambers, each having an entry portion and a discharge portion, with an inclined wall forming a common wall between the chambers and with the length of each discharge portion being substantially equal to the sum of the lengths of the entry portions of the adjacent chambers.

3,757,666
CEILING TILE PLENUM BOUNDARY SUSPENDED CEILING CONSTRUCTION
Robert R. Lambert, Glendora, Calif., assignor to Wehr Corporation, Milwaukee, Wis.
Filed Jan. 26, 1972, Ser. No. 220,758
Int. Cl. F24f 13/06
U.S. Cl. 98—40 D 7 Claims



An air troffer has an imperforate flexible membrane sheet with the outer marginal edge located between the edge of an inverted channel section and the feet of the troffer. Upon the air troffer being mounted on the gridwork of a suspended ceiling over an air bar and over the ceiling tile, between the air bar and the gridwork, the sheet drapes from the troffer over the gridwork, over the ceiling tile and over a portion of the air bar to provide a boundary for an air plenum which does not leak air.

3,757,667
PLUG-IN AIR DIFFUSER SUBASSEMBLY FOR A VARIETY OF SUSPENDED CEILING FRAMEWORK
Robert R. Lambert, Glendora, Calif., assignor to Wehr Corporation, Wilwaukee, Wis.
Filed Mar. 11, 1971, Ser. No. 123,220
Int. Cl. F24f 13/00
U.S. Cl. 98—40 D 28 Claims



A plug-in air diffuser subassembly has a pair of opposed and spaced end walls to which side walls are riveted to form an air distribution passage therethrough, and a pair of spaced protru-

sions extending laterally of the end walls and inwardly of the subassembly to frictionally mount a pair of cambered nested weirs in the air distribution passage; the subassembly plugs into a space formed between a pair of parallel inverted T-bar cross runners with the lower portion of the subassembly end walls resting on adjacent T-bar main runners. Each weir has a non-linear cambered body or web to cause the ends of the nested weirs to resiliently spread apart prior to being mounted between the protrusions. The end walls, each have a resilient block or spring arm to snap under the head ridge of an associated main runner. The subassembly side walls have integral inwardly folded lips along the upper portions to receive and locate extractor, blank-off and bridge plates or channels as well as an associated inverted continuous air ducts with the upper edges of the end walls having resilient blocks to bias the plates or channels against the inwardly folded lips.

3,757,668

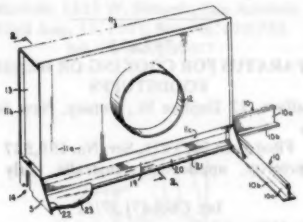
T-BAR MOUNTED AIR DIFFUSER

Frank J. Dean, Jr., Kansas City, Mo., assignor to Tempmaster Corporation, Kansas City, Mo.

Continuation-in-part of Ser. No. 89,747, Nov. 16, 1970, abandoned. This application Feb. 12, 1973, Ser. No. 331,495

Int. Cl. F24f *13/06*

U.S. Cl. 98—40 D **5 Claims**



An air diffuser device is attachable to T-bar supports which hang or are otherwise supported from a ceiling structure. The diffuser device terminates in an integrally formed longitudinal single or double directional outlet slot with one side of the slot being shaped to facilitate directing the air flow from the diffuser device along the underside of the ceiling adjacent the shape side. The side of the device opposite the shaped side cooperates to divert the air in the aforesaid direction and does so independently of the T-bar parallel to the outlet slot. Supporting gussets (or end support plates) facilitate the mounting of the device on transverse T-bars (T-bars which are located in the supporting grid in a direction that is transverse to the outlet slot of said diffuser device). The diffuser device can also be utilized as return air inlets for return air ducts.

3,757,669

FRESH-BREW COFFEE VENDOR

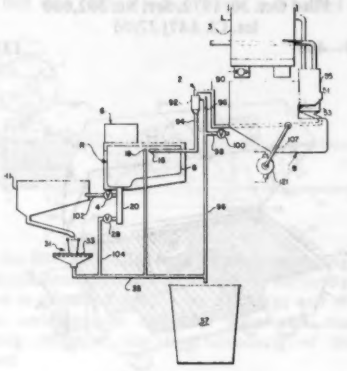
Alvin W. Holstein, Brentwood; William H. Short, and William V. Koeneker, both of St. Louis, all of Mo., assignors to UMC Industries, Inc., New York, N.Y.

Filed Oct. 13, 1971, Ser. No. 188,718

Int. Cl. A47j *31/34*

U.S. Cl. 99—280 **19 Claims**

A fresh-brew coffee vendor having a reservoir adapted to hold a plural-cup batch of brewed coffee and a single-cup brewer for supplying the reservoir, with a dispensing valve opened on a time cycle basis for dispensing a cup of coffee from the reservoir on a vend cycle, and a control for effecting operation of the brewer to brew as many cups of coffee as may be needed to re-establish the plural-cup batch in the reservoir whenever coffee is dispensed from the reservoir, and for maintaining the dispensing valve closed whenever the supply of coffee in the reservoir falls below a predetermined low level (e.g., one and one-half cups). Provision is also made for



dumping coffee from the reservoir if a predetermined time interval (e.g., two hours) elapses without a vend, and operation of the brewer is then deferred until the next vend.

3,757,670

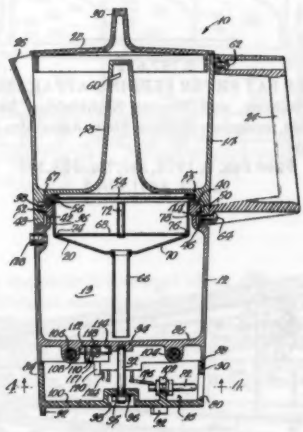
EXPRESSO COFFEEMAKER

Vello Laama, Lombard, and Robert Donald Grahn, Hinsdale, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Feb. 10, 1972, Ser. No. 225,153

Int. Cl. A47j *31/10*

U.S. Cl. 99—302 **11 Claims**



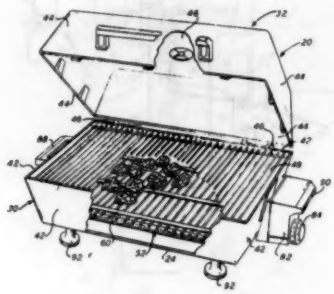
A two vessel electric coffeemaker wherein water is forced from the lower vessel through a coffee container to the upper vessel so that the percolate is collected in the upper vessel is provided. A C-shaped electrical heating element is integrally formed with the base of the lower vessel to provide energy for the generation of steam. The steam provides the necessary pressure for forcing the percolate into the upper vessel. Once the coffee has percolated it is kept warm by a thermostatic switch that is positioned inside the C-shaped heating element in contact with the base of the lower vessel.

3,757,671

FOOD PREPARATION UNIT

Martin Warshauer, Fair Haven, and Harold Sher, Rumson, both of N.J., assignors to Electric Char-B-Que, Inc., Red Bank, N.J

Filed Oct. 30, 1972, Ser. No. 302,080
Int. Cl. A47j 37/06
U.S. Cl. 99—400 13 Claims



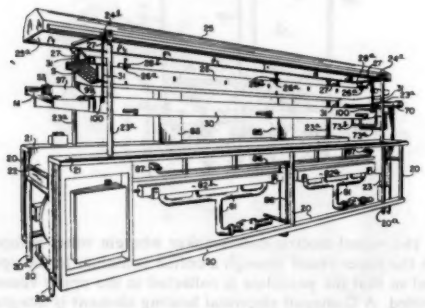
A food preparation unit including a base having a contoured bottom with an aperture formed therein to provide an air intake and to permit the drainage of fat from the unit, a cover hinged to the base and provided with an adjustable vent formed in the top thereof for permitting the escape of steam and smoke from the unit, the adjustable vent including an aperture for assuring an ever present opening to permit the escape of excess smoke and steam from the unit; and the elements contained within the grill, such as a support grill and drip pan assembly, being supported within the unit so as to be spaced from the walls of the unit so as to permit an intake of air in the aperture formed in the base of the unit and a flow of air upwardly through the unit along the walls thereof and out the vent so as to cool the bottom of the unit and purge smoke from the unit.

3,757,672

DEEP FAT FRYER FEEDING APPARATUS

Robert H. Szabrak, and Warren Stubblebine, both of Sandusky, Ohio, assignors to Sam Stein Associates, Inc., Sandusky, Ohio

Filed Feb. 8, 1971, Ser. No. 113,395
Int. Cl. A47j 37/12
U.S. Cl. 99—404 20 Claims



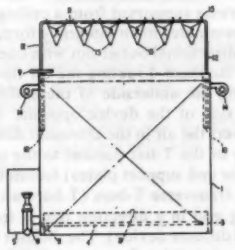
A deep fat fryer includes an elongated housing holding a bath of hot fat through which an endless main conveyor carries a batter coated food product through the bath from the infeed end thereof to a discharge end thereof. Above the main conveyor is a submerger conveyor having a run moving from the infeed end to the discharge end of the housing and adapted in operative position to lie close to the food portions on the main conveyor and to hold them submerged in the hot fat. At the infeed end of the main conveyor, there is provided a tiltable infeed conveyor, the end of which upon which the product is originally placed being movable from a position near the top level of the bath of hot fat or to another position submerged in the hot fat at approximately the horizontal level of the main conveyor so that the operator may select the time of exposure of the product to the cooking action of the hot fat before the product strikes any conveyor, between zero and that time sufficient to form a thin crust on the outside of the batter coating. To provide more economical operation by limiting the total volume of hot fat in the bath, the bottom of the housing at the infeed end of the apparatus is brought up to a level closely below the lowermost position of the infeed conveyor. In operative position of the apparatus, the submerger conveyor nests into the side rails of the main conveyor and an elongated hood encloses the hot bath housing at a zone closely above the submerger conveyor from one end of the housing to the other. For cleaning and maintenance, power means is provided to lift the hood and the submerger conveyor and the main conveyor out of the hot bath and to move them to separated horizontal levels so as to provide access space between the hood and the submerger conveyor, and between the two conveyors, and between the main conveyor and the housing holding the hot bath. The power means can then be reversed to place all of the parts in operative position.

3,757,673

APPARATUS FOR COOKING OR HEATING FOODSTUFFS

Griffith Wallace, 22 Daphne St., Botany, New South Wales, Australia

Filed June 22, 1971, Ser. No. 155,527
Claims priority, application Australia, July 10, 1970, 1795/70
Int. Cl. A47j 37/12
U.S. Cl. 99—410 1 Claim



A cooking or heating apparatus having means whereby bags of foodstuffs can be selectively suspended therein and removed therefrom.

3,757,674

EGG COOKING DEVICE

Joseph E. Carroll, 13292 Anawood Way, Westminster, Calif.

Filed Oct. 12, 1971, Ser. No. 188,149
Int. Cl. A47j 43/18
U.S. Cl. 99—440 6 Claims

First and second semi-ellipsoidal shells having first and second open end portions, which end portions have fastening means associated therewith to removably hold the end portions in sealing engagement. The first shell is of sufficient size to hold at least the yolk and white of one egg. When the shells

are in sealing engagement and an egg disposed in the confined spaced defined by the shells, the shells may be placed in a body of heated water to cook the egg. A pedestal is provided that removably engages a portion of the first shell opposite the open end portion thereof, to hold the first shell in an upright

position after the egg has been cooked and the second shell removed from the first shell. The pedestal is of substantial weight and, if desired, may be secured to the first shell during the cooking operation to assure that the first shell remains in an upright position in the heated water.

3,757,675

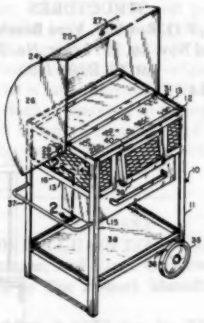
BARBECUE GRILL WITH TILT TOP AND SHIFTING FIRE BOX

Arthur E. Wilbricht, 1515 W. Summit, San Antonio, Tex.

Filed Aug. 11, 1971, Ser. No. 170,754

Int. Cl. A47j *37/07*

U.S. Cl. 99—446 **4 Claims**



This invention pertains to an improved barbecue grill constructed on a welded angle iron frame. The grill incorporates expanded metal sides preventing inadvertent contact with the heated fire box. The fire box is movably mounted on angle iron cross members which serve as a fire box track permitting shifting of the box relative to the grill. A tiltable hood is mounted on wing nuts at the center of two cross members permitting a tiltable reversal of the relative position of the hood.

3,757,676

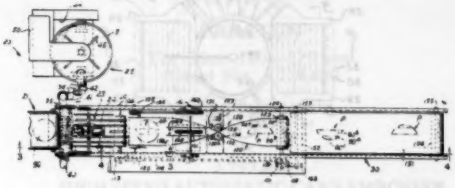
FOOD PROCESSING APPARATUS

Johnny B. Pomara, Jr., Dallas, Tex., assignor to El Chico Corporation, Dallas, Tex., a part interest

Int. Cl. A21c *9/06*

U.S. Cl. 99—450.6 **19 Claims**

A food processsing machine particularly adapted to the rapid preparation of food items including Mexican food products such as enchiladas and tacos. The machine has a feed conveyor, a filler dispenser, and a folding belt for forming a bread, cake, or pastry type shell into an envelope around a food filler. One form of the apparatus also includes a sealing system associated with the folding belt for sealing the shell around the filler after folding by the belt. The shells are sequentially introduced into the machine on the feed conveyor where a measured quantity of filler, such as a meat paste, is deposited on each shell. The shell moves along the folding belt to a folding region where it is folded upwardly



around the filler and sealed forming a filler enclosing envelope over a major central portion of the shell as the food product so prepared is advanced toward the discharge end of the belt. Various embodiments disclosed adapt the machine to processing different size food products of the nature described.

3,757,677

METHOD OF AND APPARATUS FOR ABRASIVE PEELING

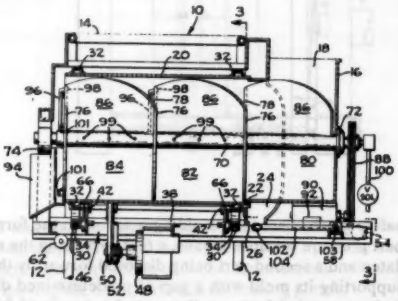
Kenneth John Brady, 6870 Crows Landing Rd., Ceres, Calif., and Edward L. Catalina, deceased, late of 64 Whittier St., Milpitas, Calif. (by Doris M. Catalina, administratrix)

Continuation of Ser. No. 877,974, Nov. 19, 1969, abandoned.

This application Nov. 23, 1971, Ser. No. 201,577

Int. Cl. A23n *7/00*

U.S. Cl. 99—630 **5 Claims**



A peeling apparatus is disclosed which comprises a rotatable drum having an abrasive surface therein, a product-moving means disposed therein consisting of circular, segmental plates mounted about a said drum, and a helical plate disposed between the segmental plates to convey the product from one compartment to the other. A water jet is provided to maintain the abrasive surface in a clean condition.

3,757,678

LOG BUNDLING METHOD AND APPARATUS

John O. Hemmingsen, Vancouver, British Columbia; Glyn D. Rogers, North Vancouver, British Columbia, and Albert C. Mullen, West Vancouver, British Columbia, all of Canada, assignors to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada

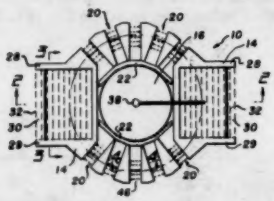
Filed Apr. 19, 1972, Ser. No. 245,497

Int. Cl. B65b *13/02*

U.S. Cl. 100—2 **38 Claims**

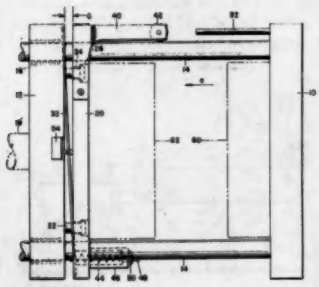
A method and apparatus for sorting and bundling logs that have been cut in the woods and when they are first placed in

water to be towed to their destinations. The logs are placed in a receiving station or pontoon and then each log is lifted out and deposited in a selected one of a plurality of expansible



cradles in accordance with the grade, species and/or size of the logs. The logs are tied into bundles in the cradles, and after the cradles have been expanded, the logs are towed out of them.

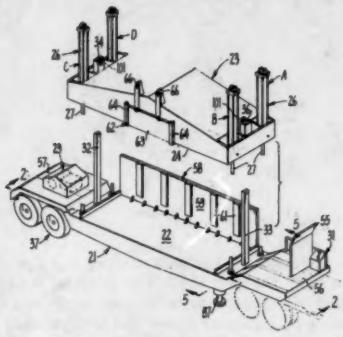
3,757,679
MOLD PROTECTOR
Walter M. Broderick, 854 Wilbraham Rd., Springfield, Mass.
Filed Nov. 26, 1971, Ser. No. 202,116
Int. Cl. B30b *15/16*
U.S. Cl. 100—53 **1 Claim**



A safety mechanism for a molding machine in the form of a two-part pressure sensitive means, a first part being the movable platen and a second part being disposed forwardly thereof and supporting its mold with a gap of predetermined dimension being provided between the parts by means of friction free reeds supporting the second part relative to the first part so arranged that, in the event of a malfunction or in the presence of an obstruction, the pressure created on the mold creates a closing of the gap and triggers micro switches which are tied in with the machine opening and closing mechanism to quickly reverse the closing action of the molding machine.

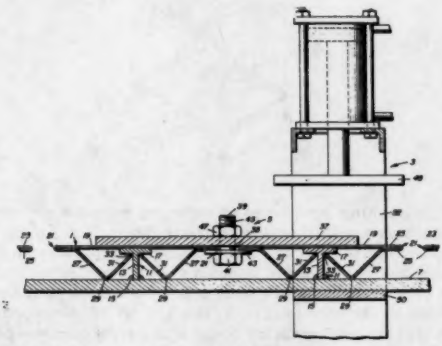
3,757,680
MACHINE FOR COMPRESSING AND FLATTENING JUNKED AUTOMOBILES
Jerome Williams, 823 W. 17th St., National City, Calif.
Filed June 28, 1971, Ser. No. 157,353
Int. Cl. B30b *15/24*
U.S. Cl. 100—100 **18 Claims**

A machine for flattening junked automobiles includes a relatively lightweight but rigid horizontally extending rectangular flattening head mounted for up and down movement over a rigid, comparatively lightweight horizontal flattening bed, with such movement being effected by hydraulic rams mounted at the corners of the generally rectangular flattening head. The head may be lifted enough to accommodate, between the head and the bed, one or more flattened automobiles plus one automobile to be flattened, so that a plurality of automobiles may be flattened between unloadings. The flattening mechanism is mounted on a highway trailer, and vertically disposed hydraulic rams force the head downwardly on their retracting stroke so that the height of the rams, and consequently the height of the overall unit, will be at a minimum,



within Federal and State maximum highway transport height limitations, when the head is in its downmost position. In one form of the invention, the hydraulic cylinder bodies are attached to the flattening head and the remote ends of the piston rods are secured to the vehicle. In a modified form, the hydraulic cylinders are fastened to the vehicle and the remote ends of the piston rods are secured to the flattening head.

3,757,681
APPARATUS FOR PRE-FABRICATING WOOD STRUCTURES
Gail H. Templin, P.O. Box 807, Vero Beach, Fla.
Filed Nov. 26, 1971, Ser. No. 202,250
Int. Cl. B30b *1/00*
U.S. Cl. 100—214 **14 Claims**



Apparatus in the nature of a jig for fabricating wood trusses providing a stationary support means, upon which the members of the wood truss are disposed. Truss plates are placed at the joints of the members of the wood truss and the teeth thereof embedded therein by means of a hydraulic press. The stationary support means includes a plurality of metallic slats, having a degree of flexibility, upon which the members of the wood truss are properly positioned. The slats are so constructed as to be mounted and removed from the stationary support means with facility and are also so structured, that upon application of vertical forces to the truss plates to drive them into the members of the truss, the pressures resulting

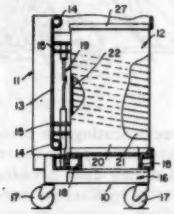
therefrom strengthen the entire unit and provide support along the transverse centers of each slat, and also at and adjacent to the longitudinal edges of each slat. The longitudinal edges of the slats are spaced apart and removable means operatively extend between adjacent slats for anchoring fixtures in proper position on the slats to abut and maintain the wooden members of the truss in the desired and necessary relative positions for fabrication of the truss components into a unitary building structure.

3,757,682

DOLLY-MOUNTED BAG HOLDER FOR REFUSE COMPACTOR

Lyle J. Ritchie, St. Clair Shores, Mich., assignor to Automatic Refuse Systems, Inc., St. Clair Shores, Mich.

Filed July 14, 1971, Ser. No. 162,546
Int. Cl. B30b *15/00*
U.S. Cl. 100—220 **2 Claims**



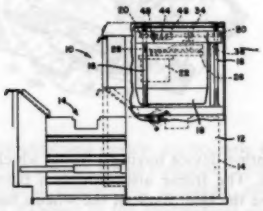
A dolly-mounted sheet metal box-like holder for plastic refuse bags, as utilized as an adjunct of existing refuse compacting equipment, is constituted by an upright front wall, an open top and rear, a bottom floor and parallel upright side walls. The side walls (and optionally, the front walls) are stamped to provide parallel ribs affording internal overhang ledges beneath which the walls of the refuse receiving bag engage as the material is ram-compacted, thus combatting a tendency of the interlocked material to spring back upwardly in the bag after each compacting ram stroke. The side wall ribs by preference also incline mildly downwardly from front to open rear.

3,757,683

COMPACTOR DRIVE CHAIN TENSIONING APPARATUS

Einar O. Engebretsen, and Ernst Grunewald, both of Troy, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio

Filed Feb. 9, 1972, Ser. No. 224,775
Int. Cl. B30b *1/18*
U.S. Cl. 100—229 A **5 Claims**



A compactor in which the compacting ram is driven along stationary jack screws by means of internally threaded sprockets mounted on the ram and threadably engaging the jack screws. The sprockets are rotated by means of a drive chain wrapping the sprockets and a drive sprocket. The drive chain is maintained in taut, sprocket engaging relationship to both the drive and driven sprockets by means of a pair of tensioning sprockets pivotally mounted on the ram and urged towards each other into engagement with the drive chain by means of a coil spring.

ERRATUM

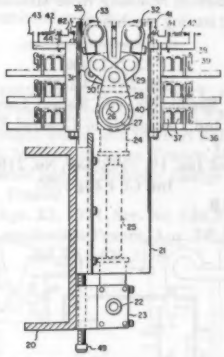
For Class 100—270 see:
Patent No. 3,757,687

3,757,684

HIGH SPEED AUTOMATIC CARD EMBOSSER

Jacob H. Drillick, Hackensack, N.J., assignor to Data Card Corporation, St. Paul, Minn.

Division of Ser. No. 57,960, July 24, 1970, Pat. No. 3,638,563, Continuation-in-part of Ser. Nos. 769,245, Oct. 21, 1968, abandoned, and Ser. No. 861,432, Sept. 26, 1969, abandoned.
This application Dec. 13, 1971, Ser. No. 207,504
Int. Cl. B41j *7/40*
U.S. Cl. 101—18 **1 Claim**



A machine for embossing credit cards having data reading means, a computer controlling selectively operable embossing punches corresponding to each character, and indexing means for moving the card past each embossing punch.

3,757,685

TICKET ISSUING MACHINE

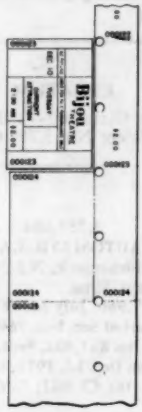
Paul E. Woodie, and James B. Edwards, both of Cockeysville, Md., assignors to American Totalisator Company, Inc., Towson, Md.

Filed Nov. 24, 1969, Ser. No. 879,172
Int. Cl. B41j *11/50*
U.S. Cl. 101—66 **6 Claims**

A machine for issuing theatre tickets comprises a mechanism for printing and cutting individual tickets from blank ticket stock, leaving a continuous record strip to be retained in the machine. Printing of an individual ticket takes place immediately prior to its issuance, and prior to its being cut from the ticket stock. Printing wheels geared together cause the same price information to be printed on the continuous record strip as is printed on the ticket. The mechanism is installed in a cabinet having a ticket cup located underneath a glass plate arranged so that tickets ejected by the machine into the cup cannot be handled by the cashier.

The ticket issuing mechanism issues from one to five tickets automatically in one operation depending on which of a group of push-buttons is selected by the operator.

Electrical means are provided for the transmission of price information to a recorder. Two machines may be connected to transmit information to the same recorder. When this is done,

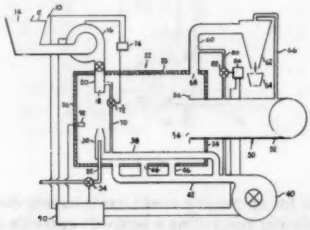


an interlock circuit is provided to prevent the recording of confused information resulting from simultaneous operation of the two ticket issuing machines.

3,757,686
INCINERATOR

Syed Aejaz Ali, Shelbyville, and Robert Loren Shields, Rushville, both of Ind., assignors to General Electric Company, New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 218,926
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 R **27 Claims**

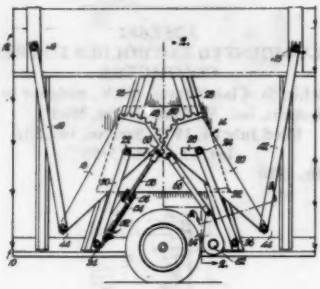


An incinerator for burning waste material having a horizontally extending combustion chamber comprising spaced end walls and side wall, through which a mixture of waste material and air is vortically moved and burned. The incinerator combustion chamber includes a tangentially directed inlet means adjacent one end wall for the feeding thereto of a mixture of waste material and air under fluid pressure. Adjacent to the opposite end wall, an exhaust flue is positioned concentrically with the longitudinal axis of the combustion chamber to vent gases, and also adjacent to the end wall opposite the inlet means is an outlet means extending tangentially from the chamber periphery for the discharge of solid material. Means are provided for introducing cooling air from a secondary source into the inlet means provided for the feeding of a mixture of waste material and air, and also for introducing cooling air from a secondary source into the outlet means provided for the discharge of solid material. Control means, including solenoid valves, are also provided to regulate the introduction of cooling air to either or both of the inlet means and outlet means and to provide cooling air during preheating of the incinerator to operating temperatures and/or upon a deficiency of the air introduced mixed with the solid waste material or upon a deficiency of air at the outlet means such as might result upon failure of equipment to supply adequate quantities of air.

3,757,687
PRESS MECHANISM FOR STACK-FORMING IMPLEMENTS

Dean P. Brooks, and Gordon M. McDaniel, both of Hesston, Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Jan. 19, 1972, Ser. No. 218,889
Int. Cl. B30b *1/08*; B60p *1/00*
U.S. Cl. 100—270 **12 Claims**

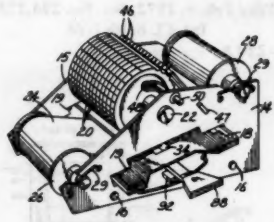


Mechanism for reciprocating the press of a stack-forming implement utilizes hydraulic energy so arranged as to decrease the time consumed during each pressing operation. To this end, the forces imparted by fluid pressure piston and cylinder assemblies are, in effect, reversed by unique arm and link arrangements such that the pressing stroke takes place as the piston stems are extended and the press is moved rapidly along its return stroke during retraction of the stems. Synchronization is effected by intermeshing gear teeth between each of two pairs of power transmitting arms or beams and by an operable interconnection through use of a torque member, the linkages being so connected as to apply equalized forces at each of four corners of the press.

3,757,688
TRAVELING CYLINDER IMPRINTER HAVING SETTABLE TYPE WHEELS WITH THREE PERIPHERAL SECTORS

Ralph A. Weber, Richmond Heights, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Feb. 23, 1972, Ser. No. 228,697
Int. Cl. B41j *1/46*
U.S. Cl. 101—45 **5 Claims**



An imprinting device having a frame which mounts a form support bed. The frame also mounts a plurality of printing wheels above the bed. Each of the wheels has one peripheral segment with printing characters thereon, another peripheral segment with visually readable characters therein, and another peripheral segment with detent grooves. The wheels are settable to select desired characters for printing. A platen assembly is mounted beneath the bed and the platen extends through a slot in the bed. The platen assembly includes mounting members which mount the platen for shiftable movement

between a printing position and an idling position. The mounting is such to move the platen to the printing position upon movement of the assembly in one direction and from one end and to an idling position upon movement of the assembly in the other direction from the other end. The device also includes an inked printing ribbon which is advanced incrementally upon each printing cycle of the platen assembly.

3,757,689

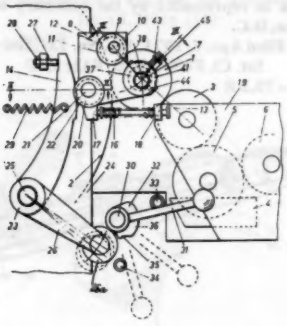
ADJUSTABLE ASSEMBLY FOR A DAMPENING ROLLER OF AN OFFSET PRINTING PRESS

Werner Koch, Gotzenhain, and Friedrich Preuss, Offenbach, both of Germany, assignors to Roland Offsetmaschinenfabrik Faber & Schleicher AG, Offenbach a.m., Germany

Continuation-in-part of Ser. No. 797,834, Feb. 10, 1969, abandoned. This application Sept. 13, 1971, Ser. No. 179,994

Int. Cl. B41f *7/26, 7/32*

U.S. Cl. 101—148 **5 Claims**



A bearing assembly for a dampening roller of an offset printing press permits movement of the dampening roller relative to an intermediate roller used for applying moisture to the dampening roller and to a plate cylinder of the press for selectively positioning the dampening roller into and out of engagement with the plate cylinder and/or the intermediate roller.

3,757,690

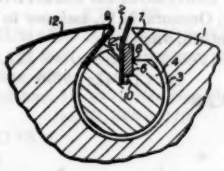
PRINTING PLATE CLAMPING DEVICE

Heinz Skiera, and Helmut Schumann, both of Leipzig, Germany, assignors to VEB Polygraph Leipzig, Kombinat Fur Polygraphische Maschinen und Ausrustungen, Leipzig, Germany

Filed Aug. 11, 1971, Ser. No. 170,827

Int. Cl. B41f *27/06*

U.S. Cl. 101—415.1 **4 Claims**



A printing plate clamping device, particularly for web-fed rotary offset printing presses, which comprises a plate cylinder having a longitudinal groove and including end walls. A clamping shaft is disposed in the longitudinal groove and a clamping strip is inserted in the groove. The clamping shaft is supported in the end walls of the plate cylinder and is movable in locked position by means of worm drives disposed at least at one of the end walls. The clamping shaft has a flattened part on the side receiving the clamping strip and defines a groove, and the latter has a depression on the side receiving the printing plate.

3,757,691

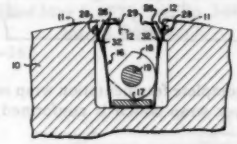
PRINTING CYLINDER

Gordon Etchell, Downers Grove, and Bohdan Washchynsky, Westchester, both of Ill., assignors to North American Rockwell Corporation, Pittsburgh, Pa.

Filed June 12, 1972, Ser. No. 261,864

Int. Cl. B41f *27/06*

U.S. Cl. 101—415.1 **2 Claims**



A printing cylinder useful in rotary printing presses is provided with construction features whereby a flexible printing plate having leading and trailing edges flanged at essentially right angles to the plate principal printing surface may be conveniently and reliably secured to the printing cylinder for printing at high rotational speeds.

3,757,692

IGNITING DEVICE FOR A ROCKET, AND ITS MOUNTING THEREON AND MANUFACTURE

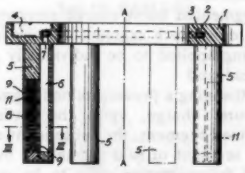
Bertrand Yves Hiffolyte Maue, and Grebert Robert Emmanuel Omer, both of St. Medard en Jalles, France, assignors to Etat Francais Represente par Le Ministre charge de La Defense Nationale, Paris, France

Filed Apr. 23, 1971, Ser. No. 136,874

Claims priority, application France, Apr. 24, 1970, 7015003

Int. Cl. I42b *3/08*

U.S. Cl. 102—49.7 **5 Claims**



An igniter device comprises a ring containing a primary charge, and extending from the ring parallel to the axis thereof are hollow casings each containing a main charge. The main charge in each casing is operatively coupled to the primary charge through an orifice in the ring and a flame tube contiguous with the main charge. The igniter device can be mounted on a solid propellant rocket having a propellant unit with a set of arms separated by cavities into which the igniter casings are slidably engaged.

3,757,693

FRAGMENTATION WRAP FOR EXPLOSIVE WEAPONS

Frank M. Shea, Cincinnati, Ohio, assignor to Avco Corporation, Richmond, Ind.

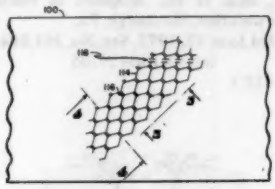
Division of Ser. No. 145,695, May 21, 1971. This application Aug. 14, 1972, Ser. No. 280,589

Int. Cl. F42b *13/48*

U.S. Cl. 102—67 **4 Claims**

A fragmentation wrap for explosive weapons is dicslosed.. The fragmentation sheet for explosive weapons having a

predefined fragmentation shape therein is fabricated by the progressive flattening, shearing and/or indenting of hot or cold



rolled steel. The complete fragmentation wrap may be a single layer or multi-layer wrap which is conformed to enclose a bomb or the like.

3,757,694

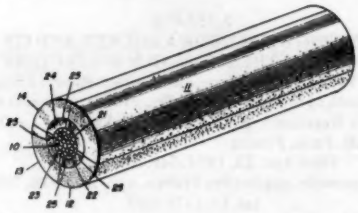
FRAGMENT CORE WARHEAD

James C. Talley, Dahlgren, Va.; Fred I. Grace, State College, Pa., and Francis R. McCleskey, Dahlgren, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 22, 1965, Ser. No. 502,712

Int. Cl. F42b *13/48*

U.S. Cl. 102—67 **5 Claims**



1. A warhead for a guided missile comprising

a fragmentation core;

a radially segmented burst charge surrounding said fragmentation core, each segment of said segmented burst charge being applied to be individually jettisoned from said warhead; and

means for jettisoning a predetermined segment of said segmented burst charge, upon the jettisoning of said predetermined segment, the subsequent explosive of the remaining segment of said segmented burst charge will cause said fragmentation core to be propelled in the direction of said predetermined segment.

3,757,695

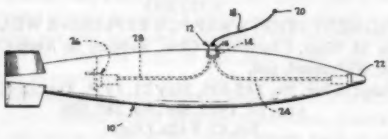
CHARGING SYSTEM FOR ELECTRIC BOMB FUZES (U)

Evan D. Fisher, Chevy Chase, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 19, 1969, Ser. No. 3,606

Int. Cl. F42b *5/08*

U.S. Cl. 102—70.2 G **1 Claim**



An electric bomb charging device self-contained within the bomb requiring no external charging gear. The device is placed within a charging well located along the longitudinal surface of the bomb and is adapted so as to receive the slipstream of air flowing along the bomb's surface after it is released from the aircraft. The charging device transforms the air slipstream into the electrical energy necessary to operate a proximity sensor and electric fuze located within the bomb. The device is provided with a protective cover that is removed by a lanyard only upon the bomb's release, and a minimum threshold velocity must be attained before the charging device is actuated. In a first embodiment form, the device is comprised of a modified fluidic generator, while in a second embodiment it takes the form an anemometer-type vane coupled with an electric alternator. Both embodiments employ electronic circuits to regulate the output voltages derived therefrom.

3,757,696

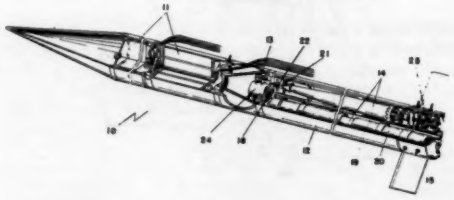
ELECTRONIC SQUIB FIRING SEQUENCER

Joseph T. Derk, Wharton, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 5, 1971, Ser. No. 131,206

Int. Cl. F42b *22/30*; F42c *9/00*

U.S. Cl. 102—70.2 R **7 Claims**



In a projectile carrying a plurality of payloads which are to be sequentially ejected, an electronic circuit for selectively firing ejection charges, which comprises a series of interlocked switches that are held in one position by the presence of the projectile backplate. Upon release of the backplate the switches assume a second position and thereby permit the application of voltage to an R-C network in which the capacitors charge up to a voltage sufficient to overcome a zener diode that in turn activates a silicon controlled rectifier via its conrol electrode. The rectifier is connected in series with an electrical energy source, ground interlock switches and a squib so as to fire the same sequentially after some selected period set by each of the R-C networks. The ground interlocks being connected so as to effectively short circuit the squibs prior to release of the backplate.

3,757,697

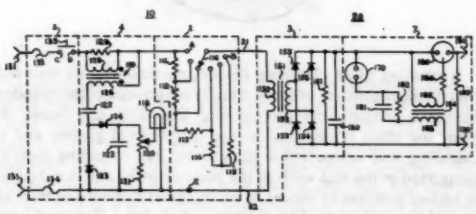
REMOTELY CONTROLLED BLASTING MACHINE

Earl M. Phinney, Oneonta, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 2, 1972, Ser. No. 222,761

Int. Cl. F42c *13/00*

U.S. Cl. 102—70.2 R **13 Claims**



A remotely controlled blasting machine for detonating explosives. The blasting machine is divided into two modules

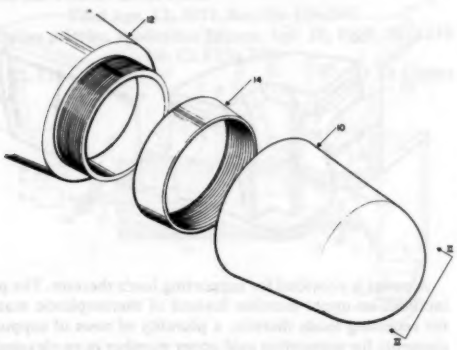
which are the remote control module and the energy storage module. The energy storage module is located in close proximity to the blasting caps while the remote control module which detonates the blasting caps is located at a safe distance from the explosion to protect the operator. The remote control module includes an indicator light which gives visual indication that the explosives are about to be detonated and a switch for stopping the detonation of the explosives during the presence of the visual indication. The blasting machine may be placed close to the explosive devices to be detonated while the operator controls the blasting machine from a safe distance.

3,757,698

LOW-INTERFERENCE SEEKER DOME ATTACHMENT

Michael D. Jacobson, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 28, 1972, Ser. No. 229,840
Int. Cl. H01g 1/42
U.S. Cl. 102—70.2 R **5 Claims**



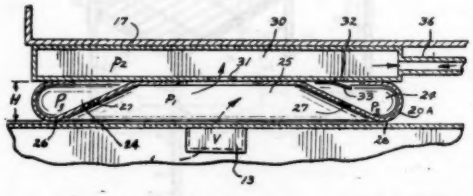
Attachment means for positioning a dome upon the airframe of a guided missile. An attachment ring is chemically bonded to the interior of a glass dome. The attachment ring has interior threads which match exterior threads on the steel airframe of the missile. The ring is made of a low thermal expansion alloy. The thread interface has a pitch angle of β. As the threads of the airframe move with respect to the threads of the attachment ring due to thermal expansion or contraction the movement will be parallel to the thread face. This parallel motion will induce only frictional forces across the thread interface causing negligible stresses in the ring and airframe.

3,757,699

PNEUMATIC SUSPENSION SYSTEM

Gary J. Wirth, St. Paul, Minn., assignor to Uniflo Systems Company, Edina, Minn.

Filed Apr. 15, 1971, Ser. No. 134,211
Int. Cl. B60v 1/16
U.S. Cl. 104—23 FS **9 Claims**



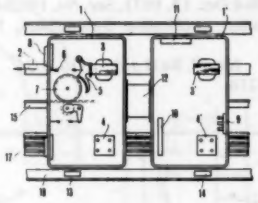
A load distribution and vehicle leveling system for a levitated vehicle operating along a surface and which has inflatable levitation pads or rings mounted on the vehicle. The system relates to provision of a pressure signal to the pads to insure that each of the pads will stabilize at a height to insure proper load carrying capacity.

3,757,700

RAIL VEHICLE WITH ELECTROMAGNET ENGAGING BELT DRIVE

Kanenari Nakagawa, and Hidero Yuki, both of Tokyo, Japan, assignors to Automa Engineering Co., Ltd., Tokyo, Japan

Filed May 1, 1972, Ser. No. 249,184
Int. Cl. B61b 13/12
U.S. Cl. 104—165 **7 Claims**



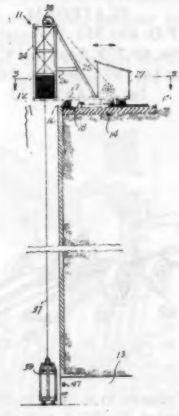
A vehicle operated by electromagnetically connecting the vehicle to a moving magnetic means. The vehicle has a plurality of wheels running on rails and has electromagnetic means thereon. Running in the same direction as the rails is a magnetic means, such as a magnetic belt or chain, and the electromagnetic means on the vehicle is energized to electromagnetically connect the vehicle with the moving magnetic means.

3,757,701

EMERGENCY MINE ELEVATOR

Russell L. Lepley, 511 East Green St., and Werner J. Motyl, 247 Oglevee Ln., both of Connellsville, Pa.

Filed Oct. 22, 1971, Ser. No. 191,762
Int. Cl. B61f 9/00
U.S. Cl. 104—242 **10 Claims**



An emergency escape hoist assembly installed adjacent a mine shaft. The assembly has a cage and associated hoist mechanism normally parked in a retracted position relative to the mine shaft. The cage and hoist mechanism can be operated from push-button switches either at the mine level. at the hoist or at ground level. When the cage is called, a main

power unit is energized and the cage and hoist mechanism are moved so as to position the cage over the shaft. The cage then descends and stops at the mine level. Personnel board the cage and push the hoist button, causing the cage to ascend. The cage stops at ground level and then the entire unit returns to its normal parked position. The mechanism is controlled by limit switches with necessary electrical and hydraulic interlocks to assure proper sequence of operations.

3,757,702

RAILWAY CAR ROLL CONTROLLED BY FLUID SPRING CONTROLLER ASSEMBLY

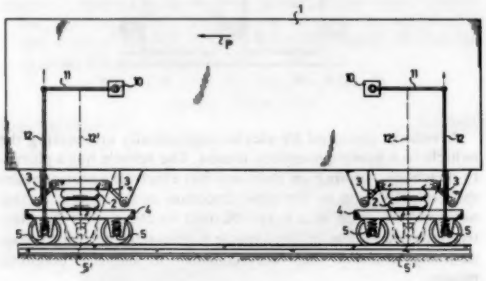
Ernst Florian Kreissig, Seuzach/ZH, and Karl Feuerlein, Winterthur, both of Switzerland, assignors to Sulzer Brothers, Ltd., Winterthur, Switzerland

Filed Oct. 13, 1971, Ser. No. 188,845

Claims priority, application Switzerland, Nov. 2, 1970, 16196/70

Int. Cl. B61f *3/08, 5/10, 5/36*

U.S. Cl. 105—210 **5 Claims**



The springs are connected to the pneumatic system over a controller which opens the springs on one side of the vehicle to air pressure while venting the springs on the opposite side to counteract tilting of the vehicle. The controller is actuated by tilt linkage devices between the axles and the body of the vehicle.

3,757,703

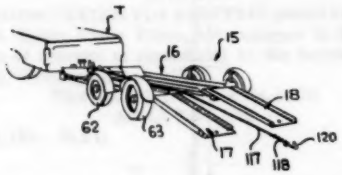
SUPPORT AND GUIDE MECHANISM FOR PIVOTING A PLATFORM

Bissett J. Roberts, P.O. Box 351, Waynesboro, Pa.

Division of Ser. No. 69,779, Sept. 4, 1970. This application June 14, 1972, Ser. No. 262,530

Int. Cl. A47f *5/12*

U.S. Cl. 108—6 **21 Claims**



This disclosure relates to a vehicle ambulance adapted to receive and transport disabled vehicles, i.e., automobiles, trucks, etc., and includes a main support having a rear end portion to which is pivotally mounted a pair of laterally spaced platform members, each of the platform members carrying on an underside thereof follower means, and a guide frame carrying a pair of actuators associated with each follower for moving the platform members between an outwardly and downwardly inclined first position relative to the main support and an outwardly and generally parallel second position relative to the main support.

The vehicle ambulance further includes means for supporting the platform members in a third generally upright vertical position, and means are provided for mounting a light assembly to the platform members in both the first and third positions thereof. The actuator means are moved in unison by means of an extensible-retractable fluid motor with the latter being articulately mounted between the main vehicle support and the laterally supported guide frame carrying the actuator means.

3,757,704

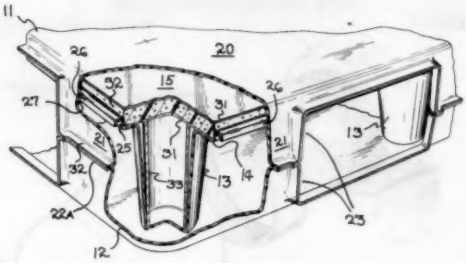
PALLET

Guy H. Allgeyer, and James B. Foote, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 140,575, May 5, 1970, Pat. No. 3,699,902, which is a continuation of Ser. No. 867,589, Oct. 20, 1969, abandoned. This application June 21, 1972, Ser. No. 264,845

Int. Cl. B65d *19/00, 19/38*

U.S. Cl. 108—51 **4 Claims**



A pallet is provided for supporting loads thereon. The pallet includes an upper member formed of thermoplastic material for receiving loads thereon, a plurality of rows of supporting elements for supporting said upper member in an elevated position to permit the entry of lifting forks thereunder, and a reinforcing member positioned between the supporting elements and the upper sheet to bridge a load positioned on the upper sheet between the respective supporting elements. The reinforcing member has spaced apart upper and lower portions which are interconnected together to permit the reinforcing member to function as a flexual member.

3,757,705

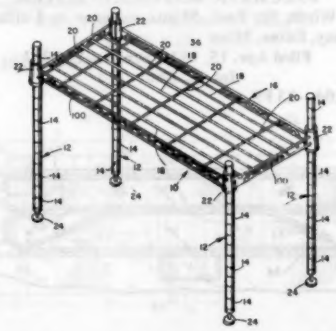
ADJUSTABLE SHELVING

Louis Maslow, Huntsville Rd., Dallas, Pa.

Filed Jan. 5, 1972, Ser. No. 215,579

Int. Cl. A47b *9/00*

U.S. Cl. 108—144 **8 Claims**



Adjustable shelving comprising a plurality of posts for supporting shelves in adjustable relation. Each of the shelves in-

cludes sleeves at the corners thereof respectively, the sleeves being generally frusto-conical and provided with a split wall so as to permit partial elastic lateral expansion thereof such that each of the sleeves are accurately positionable opposite one another at a common elevation, in surrounding relation, along the respective posts. The split wall elastically accounts for tolerance differences in the configuration of each of the frusto-conical sleeves and a frusto-conical support arrangement interpositionable between the sleeves and associated posts.

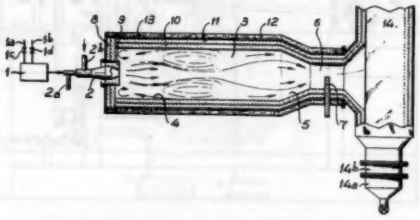
ERRATUM

For Class 110—8 see:
Patent No. 3,757,686

3,757,706
METHOD AND APPARATUS FOR INCINERATING POLLUTED LIQUIDS AND MUD

Jean Marie Pariel, Saint-Germain-En-Laye, and Gabriel Robic, Paris, both of France, assignors to Societe Anonyme Heurtey and Elf-Union, Paris, France

Filed Apr. 12, 1971, Ser. No. 133,267
Claims priority, application France, Apr. 20, 1970, 7014159
Int. Cl. F23g 7/00
U.S. Cl. 110—7 S **11 Claims**

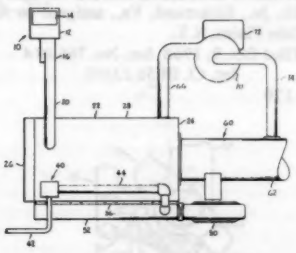


A method and apparatus for incinerating polluted liquids and mud, into which are sprayed, in the presence of an oxidizer and inside a reaction chamber, a mixture formed by the mutual dispersion of non-miscible phases at least one of which contains polluting agents to be destroyed and at least one of which is liquid.

3,757,707
INCINERATOR

Robert Loren Shields, Rushville, Ind., assignor to General Electric Company, New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 219,041
Int. Cl. F23g 5/12
U.S. Cl. 110—8 C **12 Claims**

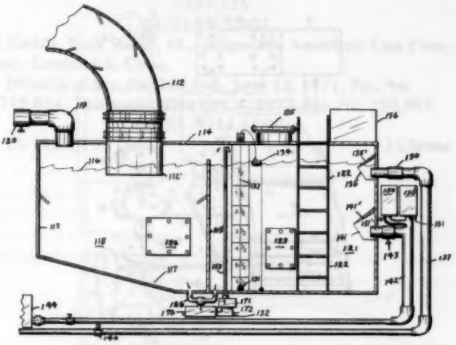


An incinerator for burning waste material including a horizontally extending combustion chamber having spaced end walls and a side wall through which a mixture of waste material and air is fed under pressure tangentially directed to said side wall for establishing a vertical movement of the waste material towards one of the end walls The waste material is ignited during its vertical movement by ignition means directing a flame into the direct path of the waste material and air as they enter the chamber. The chamber includes a discharge flue near the one end wall substantially concentric with the longitudinal axis of the chamber to exhaust combustion gases.

3,757,708
POLLUTION CONTROL DEVICE

Peter Di Prospero, 814 W. 25th St., Erie, Pa.

Filed Sept. 22, 1971, Ser. No. 182,620
Int. Cl. F23g 3/00
U.S. Cl. 110—8 R **7 Claims**

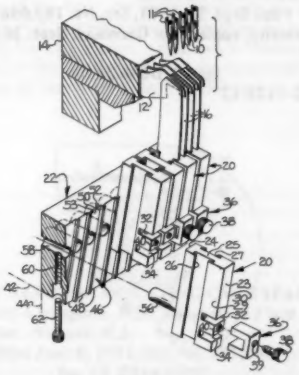


The invention described herein is made up of a closed tank, which is made to contain water. Flue gases are directed into this tank. Water is sprayed into the flue gases prior to entry to the tank. This water entrains all solid material which falls into the water in the tank and is cleaned out periodically. The matter entrained in the water in the tank floats over a partition into a second compartment where it is skimmed, and the scum is directed into a fire box of the furnace. The effluent water from the second tank is supplied to the sprayer and sprayed into the incoming flue gas as aforesaid.

3,757,709
KNIFE BLOCK FOR A TUFTING MACHINE

James T. Cobble, Dalton, Ga., assignor to B & J Machinery Company, Inc., Dalton, Ga.

Filed Apr. 27, 1972, Ser. No. 248,197
Int. Cl. D05c 15/24
U.S. Cl. 112—79 R **6 Claims**



A knife block for a tufting machine having provision for accurately aligning and connecting the block to an oscillating

knife bar. The aligning and connecting structure includes a channel formed in the front surface of the bar, the channel being adapted to closely receive the rear edge portion of the block therein to maintain a predetermined alignment.

3,757,710

AUTOMATIC QUILTING MACHINE

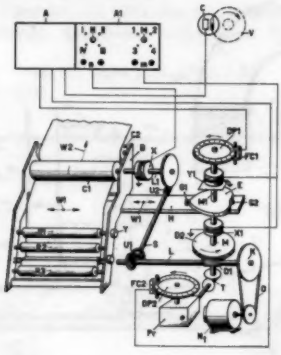
Giannino Landoni, 21012 Cassano Magnago Via Verdi 133, Milan, Italy

Filed Jan. 27, 1970, Ser. No. 6,213

Claims priority, application Italy, Jan. 30, 1969, 12181 A/69

Int. Cl. D05b *11/00, 35/00*

U.S. Cl. 112—118 **8 Claims**



An automatic quilting machine for stitching together according to any programmed pattern a plain upper material, a lower material, elastic in the warp sense and optionally an intermediate batting, which provides that a certain drawing of the stitching paths consisting of a predetermined elementary pattern repeated a given number of times, can be alternated with another or more different drawings, each of which is formed also by a plurality of repetitions of a basic pattern. Two sets of knobs control the circuits of the machine and select the basic patterns and preset an associate counter which cooperates with an impulse generator for determining the number of said basic patterns to be repeated before changing over the subsequent drawing by means of a converter.

3,757,711

TEMPLATE FOLLOWER MECHANISM

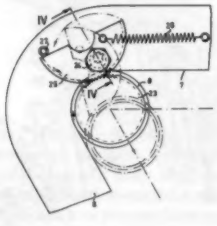
Hubert Junemann, Bielefeld, Germany, assignor to Kochs Adler AG, Bielefeld, Germany

Filed Sept. 23, 1971, Ser. No. 183,096

Claims priority, application Germany, Sept. 26, 1970, P 20 47 438.8

Int. Cl. D05b *21/00*

U.S. Cl. 112—121.12 **4 Claims**



A mechanism for use in automatic and template-controlled machines tools and especially in automatic sewing machines, in which a driven magnetic roller rollalong the peripheral edge of the template, to provide an automatic and safe driving of the roller out of the internal corner. This mechanism includes a gear pinion coaxial with the magnetic roller and either one toothed segment pivoted eccentrically on the template, or two toothed segements, if the magnetic roller must roll alternately in two directions along the template. These two toothed segments pivoted adjacent the internal corner of the template, act like a lever when the gear pinion meshes with one of the toothed segments after entering the internal corner, in order to push the magnetic roller out of the corner into a direction of a course determined by the curve of the template and the magnetic roller.

3,757,712

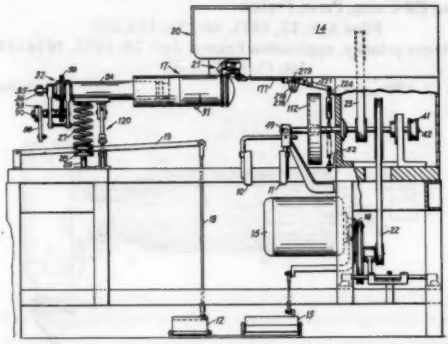
ARMHOLE FEELING MACHINE

Francis J. Brunel, and George P. Diacont, both of Richmond, Va., assignors to AMF Incorporated, White Plains, N.Y.

Filed June 17, 1971, Ser. No. 154,065

Int. Cl. D05b *35/08*

U.S. Cl. 112—132 **14 Claims**



A stitching machine for stitching a sleeve part to the armhole part of a garment including a fell stitch needle assembly with its associated drive and thread handling system, a rotatable mandrel for receiving and feeding the body and sleeve, means for indexing the mandrel between stitches, means for increasing the pressure applied to the parts by the mandrel during stitching and for reducing it during feeding thereof, a plunger for raising the portions to be stitched during the stitching, an outer feed wheel engageable with the parts during feeding, a pair of tucking fingers controllable by the operator for engaging one of the parts adjacent the stitching needle for forming tucks and a one-position clutch controllable by the operator to stop feeding while tacking stitches are applied.

3,757,713

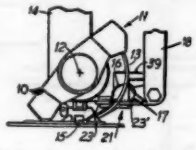
STITCHING MACHINE IMPROVEMENTS

James C. Mills, Jr., Richmond, Va., assignor to AMF Incorporated, White Plains, N.Y.

Filed Oct. 9, 1968, Ser. No. 766,044

Int. Cl. D05b *23/00*

U.S. Cl. 112—170 **1 Claim**



After a curved needle is passed through work material a first gripper grip holds the seam side loop of thread to prevent the

pull of a looper on the other loop of thread from being transmitted back into the formed stitch. The first gripper doesn't release until after a second gripper near a thread puller to which the looper transfers the other loop grips the other loop.

3,757,714

UPPER TRANSPORT DEVICE FOR SEWING MACHINES

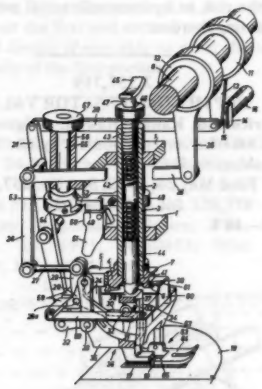
Kurt Gustmann, and Herbert Wenz, both of Kaiserslautern, Germany, assignors to Pfaff Industriemaschinen GmbH, Kaiserslautern/Pfalz, Germany

Filed June 5, 1972, Ser. No. 259,424

Claims priority, application Germany, June 19, 1971, G 71 23 663.0

Int. Cl. D05b *27/04*

U.S. Cl. 112—212 **2 Claims**



The means for feeding the material to be sewed by a sewing machine (especially a high speed sewing machine) comprises an upper transport foot and a material pressure foot. According to this invention, separate spring means, independent of one another, are provided to apply pressure to the upper transport foot, and the material pressure foot, so that the mass of the moving parts can be reduced and the undesirable inertia effects can be overcome when stopping the machine.

3,757,715

NEEDLES FOR USE WITH TUFTING MACHINES

Abram N. Spanel, 344 Stockton St., Princeton, N.J., and John L. Schwartz, Hightstown, N.J., assignors to said Spanel, by said Schwartz

Division of Ser. No. 836,399, June 25, 1969, Pat. No. 3,670,672. This application Apr. 9, 1971, Ser. No. 132,812

Int. Cl. D05b *85/00*

U.S. Cl. 112—221 **18 Claims**

Needle assemblies for tufting machines in which reciprocable tufting needles each have substantially parallel depending complementary shank or leg portions defining a needle eye which can be opened and closed by relative movement of said shank or leg portions. Various eye opening means are disclosed as for example, stationary and rotatable internal cams, linearly movable mounting members from which said shanks or legs depend, and arcuately movable mounting members all of which are designed to open and close the needle eyes in unison to receive and/or release the yarn during the tufting operation.

3,757,716

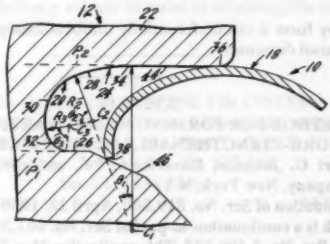
CURLER TOOL

Erik Gedde, Park Ridge, Ill., assignor to American Can Company, Greenwich, Conn.

Division of Ser. No. 152,066, June 11, 1971, Pat. No. 3,715,054. This application Oct. 4, 1972, Ser. No. 294,901

Int. Cl. B21d *51/00*

U.S. Cl. 113—1 F **3 Claims**



A continuous curl formed on the periphery of a can end component prior to the first and second operations of double seaming the can end component to an end of a can body has an inner annular portion of a configuration substantially that of a surface of revolution generated by three successive merging arcs including an inner arc struck by a first radius R_1, a middle arc struck by a second radius R_2, and an outer arc struck by a third radius R_3, where $R_1 < R_2 < R_3$, and an outer annular portion of a configuration substantially that of a generally planar surface which is parallel to a plane formed by the innermost marginal edge of the inner arc of the inner annular portion of the continuous curl. A curler tool for forming the continuous curl has a curl-forming groove which has a contour substantially the same as the configuration of the inner and outer annular portions of the continuous curl formed by the curler tool.

3,757,717

UNITARY AEROSOL MOUNTING CAP EXPANDER

Ronald Bennett, Livingston, N.J., assignor to Fluid Chemical Company, Inc., Newark, N.J.

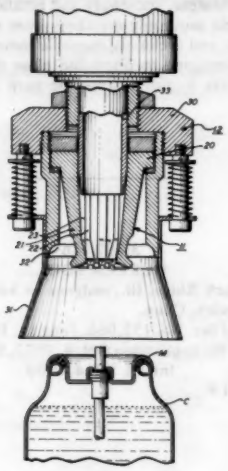
Filed June 8, 1971, Ser. No. 151,098

Int. Cl. B21d *37/00*

U.S. Cl. 113—18 E **6 Claims**

A unitary aerosol mounting cap expander, adapted to provide uniform crimping and sealing of an aerosol valve mount-

ing cap in an aerosol container by interaction of inner and outer leaves in a unitary element on actuation thereof, to



thereby form a circumferentially uniform leak-proof seal for an aerosol dispenser.

3,757,718

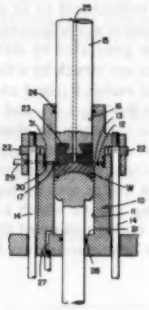
METHOD FOR FORMING HOLLOW ARTICLES OF WORK-STENGTHENABLE PLASTIC MATERIALS

Herbert G. Johnson, Havertown, Pa., assignor to Shell Oil Company, New York, N.Y.

Continuation of Ser. No. 819,869, April 28, 1969, abandoned, which is a continuation-in-part of Ser. No. 601,380, Dec. 13, 1966, Pat. No. 3,499,188. This application May 27, 1971, Ser. No. 147,663

Int. Cl. B21d *11/04, 51/00;* **B29c** *17/03, 17/07*

U.S. Cl. 113—120 R **17 Claims**



This application discloses method and apparatus for forming flanged hollow articles of solid-work-strengthenable tenaciously stretachable plastically flowable materials, particularly crystalline polymers, such as polyethylene polypropylene, and the like, and article made thereby, wherein a female die unit with a tubular portion has an annular (but not necessarily always circular) peripherally confined blank-holding recess seat at one end, the female die unit being formed of separable parts, when desired; wherein independently power-actuated rim-clamping means having axial movement clamp a rim portion of a blank securely in said recess seat against pull-in and with the added function of squeezing inventory material of the rim inwardly, when desired; and wherein an independently power-actuated axially movable article-forming plunger moves through said clamping means, preferably being guided thereby said sealed, to force the unclamped inner portion of the blank through the female die unit to pull bottom inventory material outward without extrusion action to form the sidewall of the article.

An opposed cooperating independently power-actuated axially movable bottom plunger may be provided to act against the bottom of the blank to control its shape during and at the end of the forming action, and, if desired, to eject the formed article. Means may be provided for supplying to or removing fluid from one or both sides of the blank to assist the flow of material and in ejection of the article, when desired. The arrangement of the rim-clamping means relative to the sidewall of the tubular portion of the female die unit and the shape of the forming plunger assist in the flow of material and in establishing the desired thickness of the sidewall of the article.

Means also may be provided for biaxially working the material in the rim, as by circumferential movement of pressure means acting thereon.

3,757,719

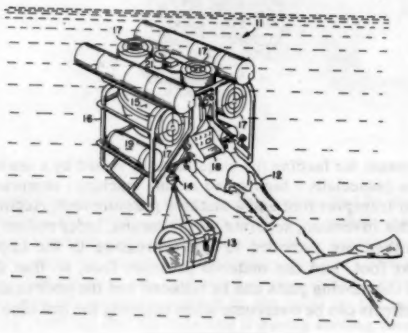
DEPTH COMPENSATOR VALVE

Alvah T. Strickland, Kailua, Hawaii, assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 26, 1972, Ser. No. 257,087

Int. Cl. B63g *8/24*

U.S. Cl. 114—16 E **9 Claims**



A pressure regulator system for controlling pressure differential between a buoyancy sphere and the ambient water pressure during descent of the buoyancy sphere employs a control valve arrangement. The body of the valve arrangement is mounted integrally on the buoyancy sphere and communicates with the interior. A diaphragm control valve and pintle control the flow of gas producing fuel so as to regulate the amount of gas passing to the interior of the buoyancy sphere to thereby maintain a predetermined pressure differential. The valve mechanism also includes flushing means to cleanse portions of the interior of corrosive salt water and other materials admitted during operation.

3,757,720

CONTROL SURFACES FOR SUBMERSIBLE VEHICLES

Stephen J. Fischer, Hyattsville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

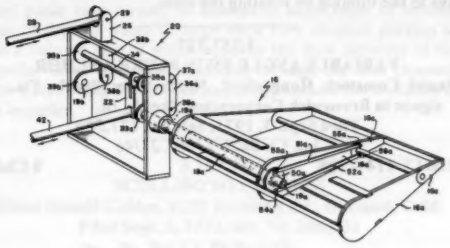
Filed Oct. 19, 1971, Ser. No. 190,503

Int. Cl. B63g *8/18*

U.S. Cl. 114—16 F **5 Claims**

Apparatus for controlling the direction of an underwater submersible vehicle includes diving planes having first control

surface portions angularly pivotable relative to the vehicle. Second control surface portions are integratedly formed with the first portions and are angularly pivotable relative to the



vehicle and relative to the first portions. A first control device is operable to pivot the first and second portions as a unit and a second control device is operable to pivot the second portions independently of the first portions.

3,757,721

UNDERWATER CRAFT FOR TRANSPORTING DIVERS

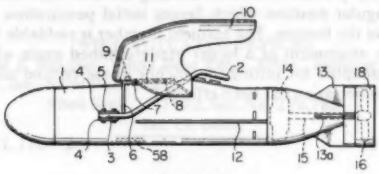
Yasuhiro Ohishi, 26-34, 5-chome, Nakano, Nakano-ku, Tokyo, Japan

Filed Feb. 23, 1972, Ser. No. 228,578

Claims priority, application Japan, Feb. 24, 1971, 46/11025; Mar. 25, 1971, 46/20413; Mar. 25, 1971, 46/20414; Dec. 1, 1971, 46/113069

Int. Cl. B63g *8/00*

U.S. Cl. 114—16 A **18 Claims**



An underwater craft or scooter adapted to transport a diver underwater and having a hull, a screw for propulsion of the hull, an electric motor for driving the screw through a propeller shaft, a storage battery for supplying power to the motor, and a control system for controlling the supply of power. Various improvements are provided, among which is a transparent water shield for shielding the operator from the relative flow of water past the hull in motion, a trimming device for fore-and-aft balancing of the hull, a device for reducing moisture in the hull, a system for detecting and indicating water in the hull, apparatus for protecting electrical parts from moisture and battery gases, a system for discharging battery gases out of the hull, a device for preventing infiltration of battery gases to and into electrical parts, and a device for preventing leakage of battery electrolyte to parts surrounding the battery.

3,757,722

SUBMERSIBLE SUBMERSIBLE UNDERWAY DOCKING UNIT

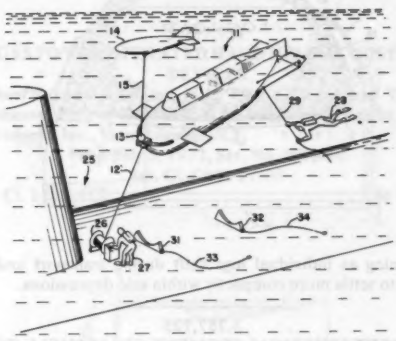
Ronald L. Seiple, Kailua, Hawaii, assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 21, 1972, Ser. No. 246,443

Int. Cl. B63g *8/00*

U.S. Cl. 114—16 **10 Claims**

A docking system employs a haul down winch to recover and secure a swimmer delivery vehicle to the deck of a large submarine. A buoyancy system is used to deploy a haul down line in a vertical position extending above the submarine vehicle. An acoustic pulse transmitter provides guidance signals to direct the small swimmer delivery submersible to a point of engagement with the haul down line. An attachment means is



secured to the line and cooperates with a capture socket carried on the nose of the submersible vehicle. A line capture and guidance device is also mounted on the nose of the sumbersible swimmer delivery vehicle to assist in attaching the vehicle to the haul down line.

3,757,723

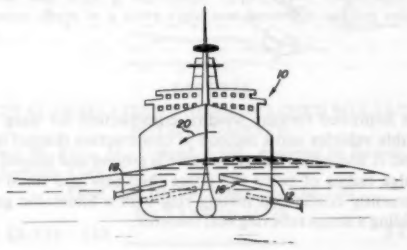
FIXED-ANGLE STABILIZING FIN SYSTEM

Frans V. A. Pangalila, Waddinxveen, Netherlands, assignor to John J. McMullen Associates, Inc., New York, N.Y.

Filed Apr. 7, 1971, Ser. No. 132,160

Int. Cl. B63b *43/04*

U.S. Cl. 114—126 **19 Claims**



A ship stabilization system comprising at least one pair of fixed-angle fins retractable into the hull of the ship. The moment developed by each fin is proportional to the area of the fin exposed to the external waters. In one embodiment, the fin is composed of a plurality of spinning rods or tubes. Also disclosed is a system for linking the fins with the ship's rudder thereby compensating for expected course changes of the ship.

3,757,724

LOG BARGE

Thomas Trygve Lunde, 1045 Sansome St., San Francisco, Calif.

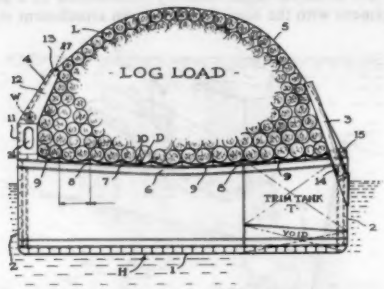
Filed Sept. 21, 1971, Ser. No. 182,427

Int. Cl. B63b *35/30*

U.S. Cl. 114—27 **6 Claims**

A log barge includes a load-supporting deck comprising a plurality of adjacent deck sections, each of which is curved to present a depression extending longitudinally and parallel to the vessel centerline. Load securing lines extending transversely of the deck are disposed over a log load placed upon the

deck and motor-driven winches maintain the thus disposed lines under a predetermined tension whereby the lines are self-



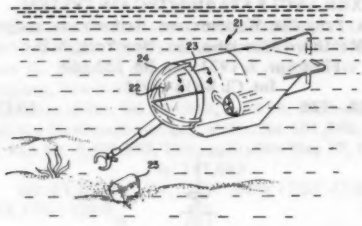
tightening as individual logs shift during transport and are urged to settle more compactly within said depressions.

3,757,725

RIGHT SPHERICAL SEGMENT-GLASS SHELL-TO METAL-JOINT

George M. Horn, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 24, 1971, Ser. No. 183,483
Int. Cl. B63b *19/02*
U.S. Cl. 114—173 **5 Claims**



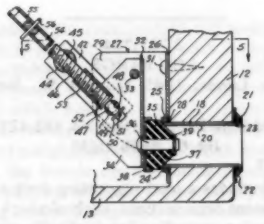
An improved viewing window construction for deep submersible vehicles and a method of construction thereof is disclosed. A hemispherical glass dome is ground and lapped with an edge radius of twice the dome thickness and fitted on a congruently configured mating ring with a bimetallic gasket providing a strain relieving seal therefor.

3,757,726

MARINE BAILER

Axel Moeller, St. Petersburg Beach, Fla., assignor to Moeller Mfg. Co., Inc., Greenville, Miss.

Division of Ser. No. 50,220, June 26, 1970, Pat. No. 3,703,150.
This application Aug. 17, 1971, Ser. No. 172,539
Int. Cl. B63b *13/00*
U.S. Cl. 114—183 R **10 Claims**



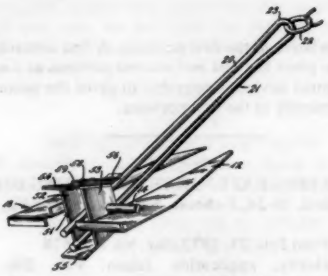
A remote control boat drainage valve assembly consisting of a thimble extending through an opening at the stern of a boat with a bracket secured in the stern having a pivoted arm carrying a plug engageable in the thimble. An elongated operating stem extends threadedly through a yoke carried by the bracket and is rotatably connected to the arm for moving the plug relative to the thimble by rotating the stem.

3,757,727

VARIABLE ANGLE TWIN FLUKE ANCHOR

Daniel Comstock Hungerford, North Palm Beach, Fla., assignor to Brunswick Corporation, Skokie, Ill.

Filed Sept. 3, 1971, Ser. No. 177,550
Int. Cl. B63b *21/44, 21/46*
U.S. Cl. 114—208 **9 Claims**



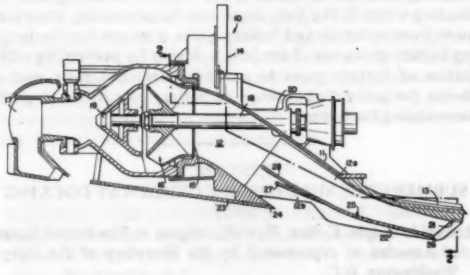
An anchor of the twin fluke type has stocks of substantial breadth to promote even penetration of the flukes, the flukes being pivotally mounted with reference to the shank, and a resiliently yieldable member tending to hold the flukes in a first angular position which favors initial penetration of the flukes in the bottom. The resilient member is yieldable to permit the attainment of a larger predetermined angle which is better adapted for setting the anchor in the bottom after the initial penetration has been effected.

3,757,728

GUIDE VANE FOR SUCTION SIDE OF MARINE JET PROPULSION SYSTEM

Ralph A. Rhoda, Orinda, Calif., assignor to Berkeley Pump Company, Berkeley, Calif.

Filed Mar. 20, 1972, Ser. No. 236,394
Int. Cl. B63h *11/08*
U.S. Cl. 115—16 **10 Claims**



In a jet boat having a jet nozzle, an impeller pump discharging water through the nozzle, and a flow channel delivering

water from below the boat to the impeller, the improvement wherein a fixed guide vane is disposed in the flow channel to divide the flow channel into upper and lower flow portions. At boat speeds greater than the impeller entrance velocity, the fixed guide vane causes an automatic adjustment of volume rates of flow of water through each flow channel portion so that a volume rate of water equal to the flow capacity of the impeller flows freely and smoothly through the flow channel, such water being distributed uniformly around the entrance of the impeller.

3,757,729
SCULLING MECHANISM

William Donald Golden, 6258 Ruthland Rd., Oakland, Calif.

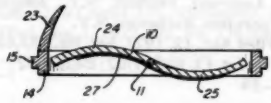
Filed Sept. 5, 1972, Ser. No. 286,031
Int. Cl. B63h *1/32*
U.S. Cl. 115—28 **7 Claims**

An apparatus for mannual steering and movement of a small boat or the like, mounted on the transom or stern of the boat, having a horizontally rotatable steering post rotated by a tiller, with the tiller mounted for up and down pivotal pumping movements to activate lateral connected blades mounted on the lower end of the steering post as a unit in the power or rearward stroke, and return them with pivotal resistance-lessening action on the return stroke, resembling the action of a duck's foot during swimming.

3,757,730
WIND ACTUATED DEVICES

Donald J. Douglas, White Bear Lake, Minn., assignor to Nu-Pro, Inc., Saint Paul, Minn.

Filed Sept. 21, 1972, Ser. No. 290,785
Int. Cl. B60q
U.S. Cl. 116—28 **20 Claims**

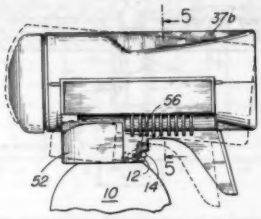


The wind actuated devices disclosed have a critical stationary wind shield which serves in combination with other features of the devices to promote desired wind actuated rotation of a rotatable part. The devices have at least one primary rotatable part, an axis means establishing a predetermined axis for rotation of the primary rotatable part, and holding means for the axis means. The primary rotatable part comprises a form-retaining base sheet material which is aligned with substantially all portions of it extending substantially parallel with the predetermined axis for its rotation. The axis for its rotation lies in the plane of the sheet and bisects the sheet into two wing parts. The wing parts are symmetrical and contoured in opposite directions to facilitate wind actuated rotation. Rotation causes each wing part to generate a solid of revolution having a curved surface extending about the axis of rotation. The wind shield is mounted in spaced proximate relationship to the rotation-generated curved surface at a radial location effective, under conditions of use in a wind environment, to interrupt external wind flow upon at least a portion of the sheet material at a wing part moving into the wind during rotation, but not to interrupt external wind flow upon the sheet material at a wing part moving with the wind during wind actuated rotation. Transparent wind shields are preferred, especially in combination with eye-catching attention-getting features including patterned areas of reflex reflecting and fluorescent materials on the base sheet material. Adjustable mounting bars are disclosed for fixing the devices to bicycles or the like.

3,757,731
GAS POWER OPERATED HAND HELD ACOUSTIC DEVICES

Michael Pappas, Irvington, N.J.; Paul A. Witte, and Thomas Johnson, both of Hopewell, N.J., assignors to Falcon Safety Products, Inc., Mountainside, N.J.

Filed July 5, 1972, Ser. No. 269,056
Int. Cl. G08b *21/00*
U.S. Cl. 116—112 **18 Claims**

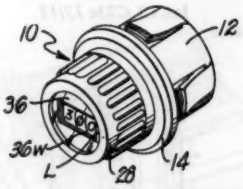


A gas powered hand held acoustic device has a horn removably mounted in a cradle and on the tiltable stem of a valve in the neck of a can containing fluid under pressure. The cradle has a trigger which when pressed tilts the horn and valve stem and blows the horn. Sliding movement of the cradle relative to the horn and can locks the horn and prevent blowing until pressure on the trigger slides the cradle and unlcoks it, permitting operation. The horn has a body and a snap-on plastic cap with a vibratable unperforate diaphragm held between them in a none rigid non-hermetic sealing relationship.

3,757,732
DIGITAL-INDICATING KNOB-ENCLOSED MULTI-TURN POTENTIOMETER

Sydney W. Frey, Jr., Upland, Calif., assignor to Bourns, Inc., Riverside, Calif.

Filed Jan. 10, 1972, Ser. No. 216,520
Int. Cl. G01p *13/00*
U.S. Cl. 116—115 **5 Claims**



A knob-enclosed multi-turn precision potentiometer having at its front end a turns-counting and indicating device effective to furnish an accurate decimal-digit indication of the current position of the potentiometer wiper relative to a zero position at one end of the helical resistance element, the potentiometer having means for permitting instant mounting in a standard aperture in an instrument panel of any of a plurality of standard thickness gages and the indicator means presenting accurate indications of fractions of hundredths of one turn from zero to ten turns to accommodate the full range

of operation of a 10 turn precision potentiometer, and the indicator further having simplified means for connection with the potentiometer comprising a serrated plug press-fitted into a receiving bore in a supporting member of the potentiometer.

3,757,733

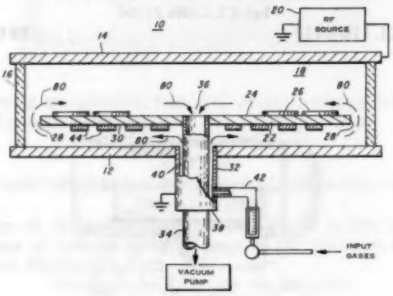
RADIAL FLOW REACTOR

Alan R. Reinberg, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1971, Ser. No. 192,957

Int. Cl. C23c *13/08*

U.S. Cl. 118—49.5 **9 Claims**



In apparatus for coating a radial flow of reactant gases is established over the substrates. A radio frequency radial flow cylindrical reactor is utilized to effect low temperature plasma deposition. Electrodes for generating the RF glow discharge are disposed within the chamber of the reactor. An annular electrode forms the support for the substrates which are disposed around the circumference of concentric circles on a surface of the support. The center region of the support communicates with an exhaust port extending downwardly therefrom. Gas flow is established over the outer edge of the support and flows in a laminar manner radially over the substrates to be exhausted through the exhaust port.

3,757,734

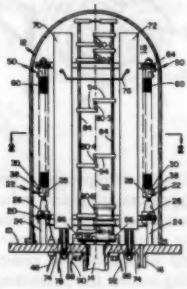
APPARATUS FOR PROCESSING RAZOR BLADES

Irwin W. Fischbein, Canton, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 15,015, Feb. 27, 1970, abandoned, which is a division of Ser. No. 639,867, May 19, 1967, abandoned, and a continuation of Ser. No. 693,527, Dec. 26, 1967, abandoned. This application Jan. 17, 1972, Ser. No. 218,328

Int. Cl. C23c *13/12*

U.S. Cl. 118—49.5 **14 Claims**



A system for treatng razor blades includes a vacuum chamber having in it a set of blade stack support structures arranged in a circle. A source of metal is disposed along a line coaxial with the circle of support structures. After razor blades are positioned on the support structures, a vacuum is established in the chamber, the sharpened blade edges are cleaned, and then, material is transferred from the source to the blade edges to form a film about 100 Angstroms in thickness on those sharpened blade edges.

3,757,735

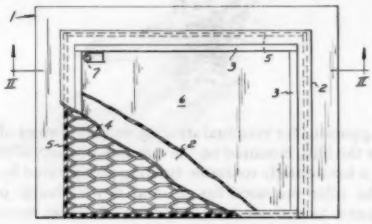
VACUUM HOLDER TO CONFORM CASTING SURFACE

Gordon Appling Crowe, Ann Arbor, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Division of Ser. No. 119,522, March 1, 1971, Pat. No. 3,728,777. This application Feb. 2, 1973, Ser. No. 329,232

Int. Cl. B05c *11/14*

U.S. Cl. 118—50 **5 Claims**



A process and apparatus are provided for flattening a metal sheet having a sinuous cross-section while it is supported from below against buckling by withdrawing air from beneath the sheet until atmospheric pressure above the sheet firmly presses it against the support substantially free from undulations and for casting a film of substantially uniform thickness on the exposed surface of the flattened sheet.

3,757,736

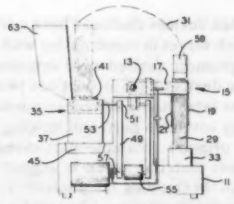
SEMI-AUTOMATIC BOOKBINDER

Clarence L. Anderson, Penfield, N.Y., assignor to Magnamatrix Corporation, Rochester, N.Y.

Filed Apr. 12, 1971, Ser. No. 133,026

Int. Cl. B05c *1/02*; B42c *9/02*

U.S. Cl. 118—59 **19 Claims**



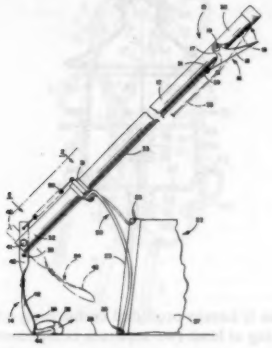
A bookbinding apparatus which permits economical operation over a wide range of book sizes and quantities and is particularly useful in central reproduction facilities. Pages are clamped in a carriage and edges aligned in a first angular position, the carriage is rotated to a second position for preheating, the pages automatically moved across a rotating drum, which applies hotmelt glue, to a cooling position. The carriage is then rotated back to the first side where tape may be applied to improve appearance.

3,757,737

MECHANICAL PICKUP DEVICE FOR ANIMAL DROPPINGS

Harvey R. Drum, 17186 Los Alimos, Granada Hills, Calif.; Jeffry L. Witherill, 17605 Enadia Way, Van Nuys, Calif., and Fredrick H. Rennwald, 3815 Edenhurst St., Los Angeles, Calif.

Filed Mar. 3, 1972, Ser. No. 231,585
Int. Cl. A47f *13/08*
U.S. Cl. 119—1 11 Claims



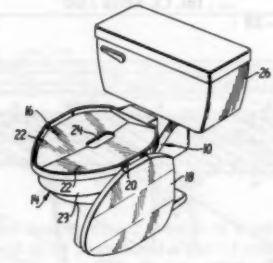
A mechanical device for sequentially loading multiple bodies of animal droppings from the ground into a disposable bag. The illustrated device has an elongated handle which carries a pickup means at its lower end. The pickup means includes means for releasibly holding a bag with the mouth of the bag held open in a generally vertical plane, and a movable paddle proportioned and arranged to engage and propell a body of animal droppings into the bag through the open mouth. The movement of the paddle is remotely controlled from the upper end of the handle by an manually movable lever which is operable to impart a rapid propelling movement to the paddle.

3,757,738

ANIMAL COMMODE

John Oliver Hall, 4210 Centre Ave., Pittsburgh, Pa.

Filed Aug. 1, 1972, Ser. No. 276,916
Int. Cl. A01k *29/00*
U.S. Cl. 119—1 7 Claims



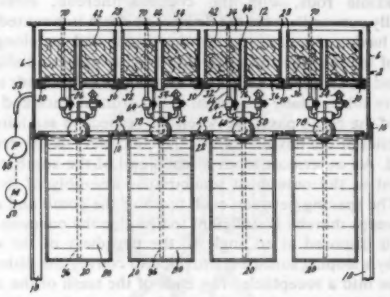
An animal commode combined with a conventional human toilet facility, featuring a hinged or otherwise operatively mounted animal seat having walls sloping downwardly intersecting near the center of the bowl, at least one perforation provided in the seat in the vicinity of the intersecting walls, a cup located on the underside of the seat rearwardly of the perforation, a cup-like rim on the upperside of the seat next to the flush tank, a cover operatively mounted to the seat to move between a first position alongside the bowl when the animal seat rests upon the human set during use by animals and a second position closing the bottom of the animal seat when same is raised to rest against the flush tank when the human seat is in use.

3,757,739

ISOLATION AQUARIUM

Kevin F. Whitener, 812 East St., Parkville, Mo.

Filed Mar. 27, 1972, Ser. No. 238,511
Int. Cl. A01k *63/00*
U.S. Cl. 119—5 7 Claims



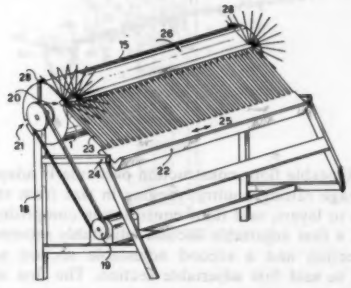
An isolation aquarium consisting of a housing carrying a plurality of tanks detachably mounted therein, a filter case detachably mounted in the housing for each of the tanks, a system powered by compressed air for constantly withdrawing water from each of the tanks, circulating it through its associated filter and returning it to the tank, the water being aerated during its circulation and filtering, mechanism for terminating the circulation but not the aeration of any tank the filter case of which is removed for servicing, and mechanism for terminating the circulation and filtration systems of any tank removed from the housing for any purpose.

3,757,740

PROCEDURE FOR SETTING UP A COCOONERY FOR SILKWORMS AS WELL AS REMOVING COCOONS FROM THE COCOONERY AND APPARATUS THEREFOR

Gabriele Peressini, Via Pennato, 7, Udine, Italy

Filed Oct. 29, 1971, Ser. No. 193,676
Claims priority, application Italy, Oct. 31, 1970, 83370 A/70; Apr. 20, 1971, 83333 A/71; Oct. 7, 1971, 83389 A/71
Int. Cl. A01k *67/04*
U.S. Cl. 119—6 16 Claims



An artifical cocoonery is disclosed which includes a semicircular assembly of radially disposed circumferentially aligned flexible rods, the surfaces of the rods being suitable for the attachment of cocoons by the silkworm. A plurality of the

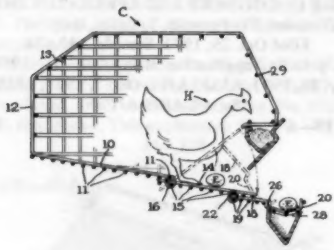
semicircular assemblies of rods is mounted so as to protrude from and be spaced along one side of an elongated shaft. The radial rods of one assembly are alternately oriented between the circumferential spaces of the rods of each adjacent assembly for hygienic sericulture. In one embodiment each semicircular assembly of radially disposed flexible rods is mounted from a hub or sleeve. A plurality of these hub-mounted assemblies is engaged or telescoped in abutting relationship upon a supporting shaft to form a cocoonery unit. In another embodiment, a machine for removing and harvesting the fully developed cocoons is disclosed having an elongated rotatable drum with means for attachine, one or more cocoonery units upon the surface of the drum with their longitudinal axes disposed radially from the axis of the drum and with the flexible rods, with the cocoons thereon, extending generally outwardly from the drum. The drum is mounted on a stand, having means to rotate the drum, and an elongated array of teeth in the form of a comb is pivotally and slidably mounted on an axis therefrom so that the extended ends of the teeth are substantially tangential to the drum surface and each tooth of the comb passes between the respective semicircular assemblies of the flexible rods of the cocoonery as the drum is rotated. An outermost tooth at each end of the comb passes adjacent to the outermost semicircular assembly of flexible rods. The spacing between each tooth of the comb and a rod as it sweeps thereby is sufficient to dislodge the cocoons. The comb is disposed at an angle to the periphery of the drum whereby a sloping surface is provided to convey the dislodged cocoons into a receptacle. The ends of the teeth of the comb may slidably engage the surface of the drum and maintain the sloping attitude of the comb about its longitudinal pivot.

3,757,741

ADJUSTABLE CAGE FLOOR CONSTRUCTION

Anthony J. Siciliano, New York, N.Y., assignor to Diamond International Corporation, New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 218,866
Int. Cl. A01k *31/00*
U.S. Cl. 119—17 **11 Claims**



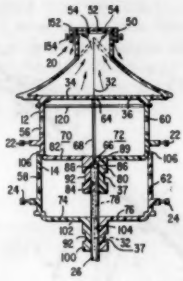
An adjustable floor construction particularly adaptable for use in cage raising poultry, ranging in size from starters to growers to layers, said floor construction comprising a fixed section, a first adjustable section adjustably secured to said fixed section and a second adjustable section adjustably secured to said first adjustable section. The first adjustable section being selectively secured in either an upwardly inclined ramp position so that baby chicks of starter size may ascend thereon to avail themselves to feed or in a downwardly inclined ramp position upon which eggs of layer birds may freely gravitate to an egg receiving tray. The second adjustable section being capable of functioning both as part of a locking means and as said egg receiving tray.

3,757,742

PURPLE MARTIN BIRDHOUSE

William Schlegel, Cranbury, N.J., assignor to Pen-Cell Plastics Inc., Hamilton Square, N.J.

Filed Oct. 20, 1971, Ser. No. 191,034
Int. Cl. A01k *31/00*
U.S. Cl. 119—23 **10 Claims**



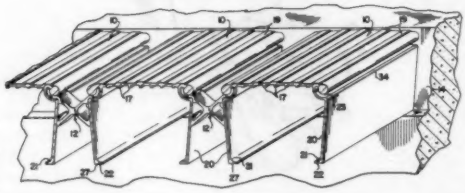
A birdhouse is herein provided comprising a vertically split structure having at least two separate components. Each component presents a portion of a chimney extending from a roof portion of the structure. A removable clamping member, in the nature of a chimney cap, is secured to the outer, upper marginal edges of the chimney to urge the components of the vertically split structure horizontally together. The components are further formed to present a downwardly extending collar portion for axially receiving a birdhouse supporting post. The collar, which is of an axially split configuration due to the vertically split nature of the overall structure, may be clamped by a removable strap or the like to frictionally engage the cylindrical surface of the post. In one feature of the invention, an upper marginal surface of the chimney is formed with a plurality of protuberances to hold the chimney cap in spaced relationship to the marginal edge of the chimney to define a ventilation path from inside the birdhouse through the chimney and out under the chimney cap.

3,757,743

SLATTED FLOORING CONNECTOR SYSTEM

Russell B. Lehe, Cleveland, Ohio, assignor to Morandex, Inc., Cleveland, Ohio

Filed Jan. 20, 1972, Ser. No. 219,312
Int. Cl. A01k *1/00*
U.S. Cl. 119—28 **15 Claims**



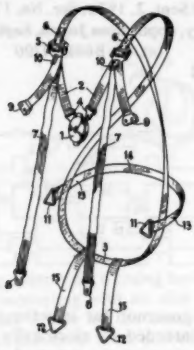
A lightweight, easily-assembled slatted flooring system for an animal enclosure comprising a plurality of channels interconnected in spaced-parallel relationship by X-shaped connectors, each connector having arcuately-shaped ends extending from two of its legs which engage similarly shaped grooves in the upper, outer corners of each channel.

3,757,744

HARNESS FOR PARACHUTES AND THE LIKE

Marcel H. Pravaz, Clichy, France, assignor to Etudes et Fabrications Aeronautiques, Paris, France

Filed Dec. 1, 1971, Ser. No. 203,782
Claims priority, application France, Dec. 15, 1970, 7045214
Int. Cl. B64d 17/30
U.S. Cl. 119—96 3 Claims



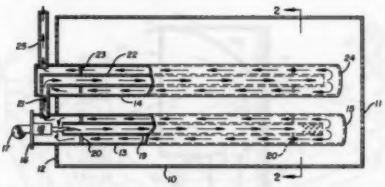
A harness for a parachutist or workman carrying out dangerous work liable to result in the falling of the workman. The harness has only two adjusting points. The harness has a rapid release means to which are attached a pair of shoulder straps and the ends of a pair of adjusting straps. The opposite or free ends of the adjusting straps pass through fixing means, defining the adjusting points and mounted on the shoulder straps. Adjustment of the entire harness is effected by manipulation of the free ends of the adjusting straps.

3,757,745

DIRECT FIRED HEATING DEVICE

John H. Miller, Youngstown, Ohio, assignor to Hy-Way Heat Systems, Inc., Youngstown, Ohio

Filed May 5, 1972, Ser. No. 250,795
Int. Cl. F22b 7/00
U.S. Cl. 122—136 R 4 Claims



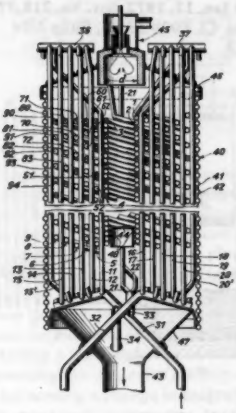
A direct fired heating device consists of a tank for containing the material to be heated and a pair of spaced elongated heat exchangers disposed in said tank with portions extending outwardly of one end of said tank. Each of said heat exchangers includes elongated tubular baffles disposed therein and one of said heat exchangers is placed in communication with a source of combustion the products of which are directed into the tubular baffle therein. The other of the heat exchangers has the tubular baffle therein in communication with the other heat exchanger so that the products of combustion are recirculated in a tortuous path through both heat exchangers and subsequently vented to the atmosphere.

3,757,746

HEAT EXCHANGER

Harendra Nath Sharan, Seuzach/ZH, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed May 3, 1971, Ser. No. 139,601
Claims priority, application Switzerland, May 8, 1970, 6861/70
Int. Cl. F22b 21/26
U.S. Cl. 122—250 R 13 Claims



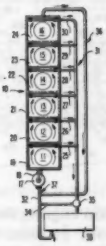
The heat exchanger is self-supporting in that one tube system of co-axial tube cylinders is supported within a second tube system formed of a skeleton of tubes. Both systems are connected to common distributors and headers and both are enclosed by a cylindrical casing of helically coiled tubes. A muffle burner is located coaxially of the first tube system to direct a flow of heat exchange medium into the heat exchanger.

3,757,747

COOLING WATER CIRCULATION FOR MULTI-CYLINDER INTERNAL COMBUSTION ENGINES

Otto Hartmann, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

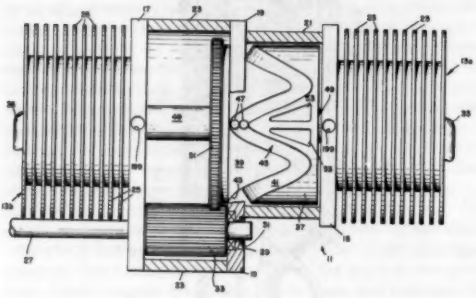
Filed Nov. 4, 1971, Ser. No. 195,708
Claims priority, application Germany, Nov. 5, 1970, P 20 54 431.4
Int. Cl. F01p 3/02, 7/16
U.S. Cl. 123—41.74 15 Claims



A cooling water circulatory system for multi-cylinder internal combustion engines in which a partial cooling water quantity is branched off from the individual cooling water spaces of the cylinders that are sequentially circumcirculated by the cooling water, and in which the partial cooling water quantities are collected after passage through the respective cylinder

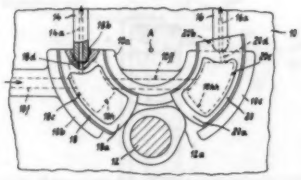
heads in a cooling water return line whereby the cooling water space of a downstream cylinder, as viewed in the flow direction, preferably the last cylinder, is tapped by means of a by-pass line which terminates, by-passing the cylinder heads, in the cooling water line system at a place between the suction side of the cooling water pump and the cylinder heads.

3,757,748
ROTATING COMBUSTION ENGINE
James A. Arney, 2218 Ripley, Redondo Beach, Calif.
Filed Jan. 17, 1972, Ser. No. 218,376
Int. Cl. F02b *53/00*; F01p *1/04*
U.S. Cl. 123—45 A **21 Claims**



An engine capable of both internal combustion and fluid pump operation utilizing a pair of opposed reciprocating pistons in a piston accommodating cylinder or axially aligned cylinders, the pistons having centrally disposed apertures through the faces thereof and being affixed to the ends of a hollow piston rod slidably disposed over an elongated hollow rigid tube extending coaxially within and along the longitudinal axis of the cylinder and between and communicating through oppositely disposed cylinder heads.

3,757,749
VALVE OPERATING GEAR IN INTERNAL COMBUSTION ENGINES
Ernst Hatz, Ruhstorf, Germany, assignor to Motorenfabrik Hatz KG, Ruhstorf, Germany
Filed Mar. 29, 1971, Ser. No. 128,945
Claims priority, application Germany, Apr. 14, 1970, P 20 17 823.8
Int. Cl. F01l *1/26*
U.S. Cl. 123—90.22 **3 Claims**

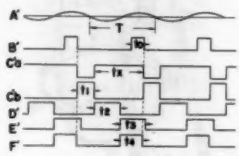


In an internal combustion engine, the engine casing has segmental flanges defining one or more annular guideways extending generally at right angles from the camshaft. At least one correspondingly annular segmental element is slidably disposed in each guideway such that one end thereof bears against the cam and the other end provides a seat for an associated valve push rod. Reciprocation of the element along the annular guideway actuates the push rod, and hence the valve. The segmental element may include an oil reservoir which receives oil from a duct or reservoir in the casing or flanges, and conducts the oil to an oil duct in the push rod.

ERRATUM

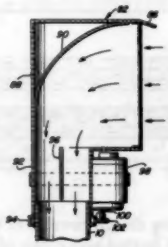
For Class 123—97 see:
Patent No. 3,757,796

3,757,750
ELECTRONIC GOVERNOR FOR INJECTION-TYPE INTERNAL COMBUSTION ENGINES
Yoshio Ohtani, Higashi-Matsuyama, Japan, assignor to Diesel Kiki Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 2, 1971, Ser. No. 177,377
Claims priority, application Japan, Sept. 17, 1970, 45/80999
Int. Cl. B60k *31/00*
U.S. Cl. 123—102 **3 Claims**



An electronic governor for injection-type internal combustion engines intended to electrically detect changes in revolution speed, convert the detected information into an electric control current, and therewith operate an electromagnetic actuating section; on the other hand, to similarly detect the displacement of the fuel adjusting rod, feed back the detected information temporarily to the control section through a differentiating circuit, whose time constant corresponds to the engine, thereby stabilizing the engine speed; and, furthermore, to similarly detect also each displacement of the fuel adjusting rod due to a change in engine load, feed back the detected information to the engine speed setting section, in order to provide a control performance that eliminates the engine speed regulation.

3,757,751
AIR STREAM EXPOSED ADJUSTABLE RAM AIR INTAKE HORN
James F. Kitchin, Rt. 2, and Dalton L. Smith, 310 Line Oak St., both of Marlin, Tex.
Filed Jan. 7, 1972, Ser. No. 216,057
Int. Cl. F23l *17/02*
U.S. Cl. 123—119 CG **2 Claims**



An air intake horn assembly for use on the induction air intake of a vehicle combustion engine. The assembly is constructed in a manner whereby it may open horizontally in the direction in which the associated vehicle is moving to thereby support ram air induction for the associated combustion engine. However, the intake horn is constructed in a manner whereby it may be at least partially shielded from ram air in inclement weather.

3,757,752

AIR FILTRATION AND OR REGULATION OF CARBURETOR AIR INTAKE TEMPERATURE

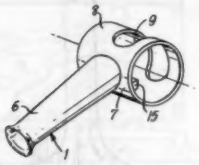
Richard John Holker, Marple, England, assignor to Fram Filters Ltd., Llantrisant, Pontyclun, Glamorgan, Wales

Filed Oct. 5, 1970, Ser. No. 78,089

Claims priority, application Great Britain, Oct. 7, 1969, 49,310/69

Int. Cl. B01d *27/08*; F02m *31/06*

U.S. Cl. 123—122 D 3 Claims



Air filter housing comprising a casing having an inlet and an outlet, the inlet cooperating with an inlet extension tube to provide an air intake orifice for the housing at the distal extremity of the inlet extension tube, and the outlet having an outlet orifice member for connection to the air intake of user apparatus (for example an internal combustion engine carburettor) downstream of the air filter; means for mounting a filter element in the casing to filter air flowing from the inlet orifice to the outlet orifice; and means responsive to the temperature of air in the filter housing for automatically varying the position of the inlet orifice with respect to the outlet orifice member in accordance with the temperature.

3,757,753

FUEL TANKS

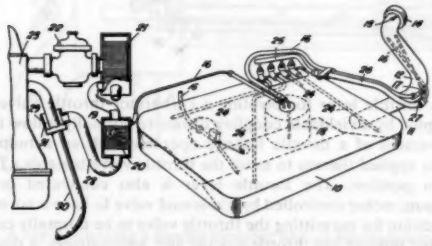
Allan Frederick Hunt, Solihull, England, assignor to Chrysler United Kingdom Limited, London, England

Filed Oct. 5, 1971, Ser. No. 186,633

Claims priority, application Great Britain, Oct. 16, 1970, 49,336/70

Int. Cl. F02m *25/08*

U.S. Cl. 123—136 7 Claims



A fuel tank for a motor vehicle engine has a vent pipe for fuel or vapour overflow leading from an upper end of the tank filler pipe to a liquid separator chamber housed within the tank. The vent pipe extends from the separator chamber to a container holding activated carbon particles for adsorbing fuel vapour and thence to an air cleanser for the engine carburettor.

3,757,754

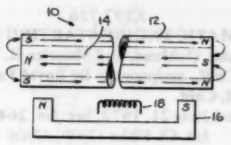
IGNITION SYSTEM

John Richard Wiegand, Valley Stream, L. I., N.Y., assignor to Milton Velinsky, Plainfield, N.J. and John R. Wiegand, Valley Stream, N.Y., part interest to each

Filed Sept. 28, 1971, Ser. No. 184,506

Int. Cl. F02p *3/02*

U.S. Cl. 123—148 E 20 Claims



An ignition system is disclosed which includes a primary circuit having a battery, the primary winding of an ignition coil and an electronic valve controlling energization of the primary winding by the battery; a secondary circuit having the secondary winding of the ignition coil, a plurality of contacts adapted to be connected to combustion ignition devices and a distributor mounted to sequentially complete electrical connection between the secondary winding and each contact and triggering means including at least one wire mounted on a rotor, the wire having a shell and core of different coercivity, a magnet for reversing the magnetic polarity of the core, and a sensing head for sensing a change in magnetic flux around the wire which is produced in response to the occurrence of predetermined criteria, the sensing head providing a signal for controlling the electronic valve.

3,757,755

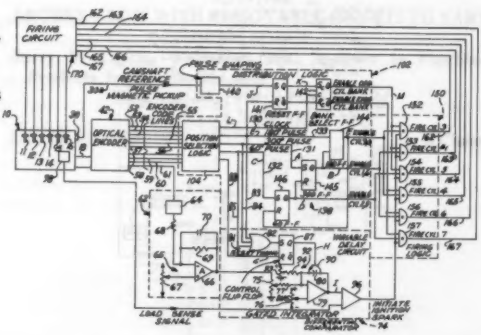
ENGINE CONTROL APPARATUS

Walter J. Carner, Ft. Collins, Colo., assignor to Institute of Gas Technology, Chicago, Ill.

Filed Oct. 14, 1971, Ser. No. 189,426

Int. Cl. F02p *1/00*

U.S. Cl. 123—148 E 3 Claims



The disclosure describes a system for controlling the performance and efficiency of an internal combustion engine of the type having a plurality of combustion chambers that are fitted with controlling devices, such as spark plugs, in order to drive a rotatable engine member, such as camshaft or a crankshaft. Encoder means for producing identity code signals that uniquely identify a plurality of positions of the rotatable engine member are provided in order to monitor the cyclic position and speed of the engine. Additional monitors may be provided for continuously monitoring other engine parameters, such as the load placed on the engine. These engine monitors convert the value of the engine parameters into cor-

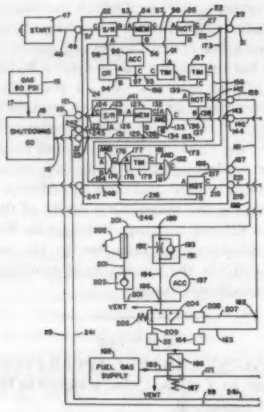
responding electrical signals. The actuation of the controlling devices is controlled by a distribution electronic logic circuit that enables the controlling devices to be selected and actuated over a predetermined number of rotational degrees of the rotatable engine member. After the proper controlling device has been selected, the exact time of actuation is controlled by a variable electronic delay circuit that is controlled by the electrical signals corresponding to the engine parameters.

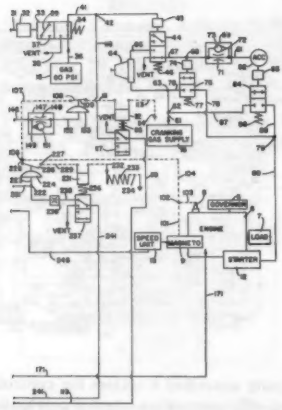
3,757,756

AUTOMATIC ENGINE STARTING SYSTEM

Sheldon Owyoung, Oakland, and Maurice H. Lowrey, Pleasanton, both of Calif., assignors to De Laval Turbine California, Inc., Oakland, Calif.

Filed June 21, 1972, Ser. No. 264,948
Int. Cl. F02n *17/00, 17/06*
U.S. Cl. 123—179 G **12 Claims**





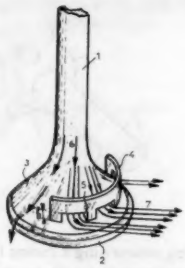
A rotating, spark ignition, gas engine has a starter motor and an ignition magneto. A pneumatic logic system operated by gas responds to a starting impulse to rotate the engine by a gas driven starter until the magneto has an appreciable electrical output, whereupon starting and running gas are, under control of the pneumatic logic system, furnished the engine and the starter is decoupled. The pneumatic logic system discontinues the starting sequence unless the engine properly comes up to minimum running speed.

3,757,757

INTERNAL-COMBUSTION ENGINE INTAKE-VALVE PROVIDED WITH A DEFLECTOR PLATE

Dirk Bastenhof, Eaubonne, France, assignor to Societe D'Etudes De Machines Thermiques, Saint-Denis, France

Filed Jan. 7, 1972, Ser. No. 216,152
Claims priority, application France, Jan. 28, 1971, 7102840
Int. Cl. F01l *3/06*
U.S. Cl. 123—188 VA **1 Claim**



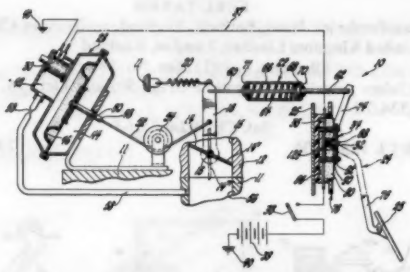
An intake valve for an internal-combustion engine, especially a four-stroke engine, which comprises an arcuate deflector plate located on the collar of the said valve, said deflector plate being provided with spaced apertures adjacent to said valve collar.

3,757,758

THROTTLE PEDAL ACTUATED THROTTLE RETURN

Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed July 24, 1972, Ser. No. 274,577
Int. Cl. F02b *77/08;* **F02d** *11/04;* **B60k** *27/08*
U.S. Cl. 123—198 DB **4 Claims**



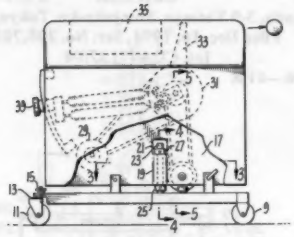
A throttle lever for pivoting a carburetor throttle valve is coupled by a yieldable coupling device to normally follow the movement of a throttle linkage operable with an actuating force applied thereto to move the throttle valve towards a full open position. The throttle lever is also connected to a vacuum motor controlled by a solenoid valve to have a normal condition for permitting the throttle valve to be normally controlled through the throttle linkage and, alternatively, a throttle return condition for overcoming the bias of the coupling device and returning the throttle valve to an idle position when the throttle linkage is prevented from normally doing so. Electrically connected with the solenoid is a switch actuatable by a linkage lever comprising a portion of the throttle linkage and having a pivot section. The pivot section is supported by a pivot support so as to be pivotable about a pivot axis and movable laterally thereto to cause the switch to establish the vacuum motor in the normal and throttle return conditions on the respective application and removal of actuating force.

3,757,759

AUTOMATICALLY VARIED OSCILLATION TYPE BALL PROJECTING DEVICE

James G. Haworth, 100 Green Ln., Eugene, Oreg.

Filed Apr. 7, 1972, Ser. No. 242,097
Int. Cl. F41b 3/02
U.S. Cl. 124—7 3 Claims



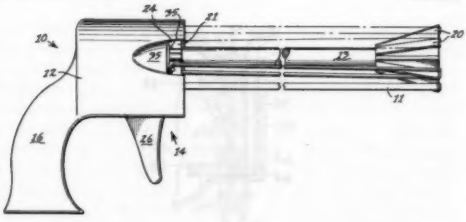
A generally improved oscillator for a ball throwing machine is provided wherein the ball throwing machine is mounted on a flat frame member and the drive mechanism of the ball throwing machine is used to actuate a cam, causing the frame member to oscillate. The frame is a rectangular vertically positioned plate extending substantially the length of one of the members forming a T-shaped base. The plate is pivotally mounted to the base through a stub shaft on the base member. The plate has a rotatable camming sprocket that engages a cam follower on the base member to cause oscillation of the plate with respect to the base. A ball magazine is mounted on top of the plate. The magazine feeds balls to a ball throwing arm. There is a spring on the base that biases the rotatable camming sprocket into engagement with a cam follower. The ball throwing machine is wheel mounted.

3,757,760

TOY GUN WITH ROTATING MAGAZINE FOR DISCHARGING ELASTIC BANDS

Wayne Lee Darnell, Rt. 6, Hwy. 79, Clarksville, Tenn.

Filed June 14, 1971, Ser. No. 152,544
Int. Cl. F41b 7/02, 7/09
U.S. Cl. 124—19 5 Claims



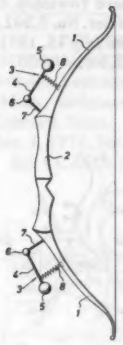
A toy gun having a handle member and an elongated spindle rotatably mounted upon the handle member. The spindle is provided with equally spaced front radial projections and equally spaced aligned rear radial projections for receiving thereover stretched rubber bands. A trigger member on the handle member is provided with a cam rod biased forward into operative engagement with a cam surface on each rear radial projection for simultaneous rotation of the spindle and removal of the elastic band from the rear projection. Upon deactuation of the trigger means, the cam rod moves into operative engagement with the next successive rear projection.

3,757,761

ARCHERY BOW HAVING VIBRATION DAMPENER

Tadao Izuta, Shizuoka-ken, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Nov. 11, 1971, Ser. No. 197,680
Int. Cl. F41b 5/00
U.S. Cl. 124—23 8 Claims



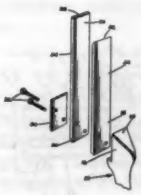
An archery bow being provided with at least one pair of stabilizers or vibration dampeness each of which comprises a vibrator, such as a rod- member with a weight mounted at the free end thereof. The vibrator extends over the limb section of the archery bow, and is directly connected to the limb section through an elastic member, such as a coil spring. The vibrator is also connected to the bow at another location on the bow. The shock and vibration caused by the limb section is directly and immediately transmitted to the vibrator through the elastic member, and is effectively absorbed by the vibrator. The elastic member prevents the shock or vibration that is once transmitted from the limb section to the vibrator to be fed back to the limb section.

3,757,762

ARCHERY BOW WITH REMOVABLE INSERTS TO VARY DRAW FORCE

Barry D. Cousin, Walkerton, Ind., assignor to Plas/Steel Products, Inc., Walkerton, Ind.

Filed Apr. 20, 1970, Ser. No. 30,134
Int. Cl. F41b 5/00
U.S. Cl. 124—24 8 Claims



An archery bow having a handle, a pair of limbs and a pair of stub members selected from a plurality of stub members having different lengths. All of the stub members are substantially shorter than the limbs. The inner ends of the limbs and the inner ends of the stub members are respectively removably secured to the handle ends with the inner ends of the stub members being respectively sandwiched between the handle ends and the belly sides of the limbs adjacent their inner ends. The limbs and stub members respectively extending outwardly from the handle ends in side-by-side relationship. The outer

ends of the stub members respectively engage the belly sides of the limbs intermediate the ends of the latter when the bow is strung and cooperate therewith to provide a draw weight determined by the length of the selected stub member.

3,757,763

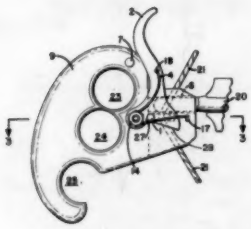
TRIGGER OPERATED BOW STRING RELEASE DEVICE

Ross A. Pinti, 1106 Roemer Blvd., Farrell, Pa., and Patrick R. Pinti, 62 Stiver St., Hubbard Township, Ohio

Continuation-in-part of Ser. No. 5,202, Jan. 23, 1970, abandoned. This application July 15, 1971, Ser. No. 163,019

Int. Cl. F41c *19/00*

U.S. Cl. 124—35 **8 Claims**



A trigger operated bow string releasing mechanism for receiving a bow string and arrow and shooting the arrow incident to a triggered release of the bow string. A hand-supported stock carries the releasing mechanism which includes a bow string engaging hook pivoted to the stock on a vertical axis. The hook is held in its string engaging position through engagement in a notch provided in the lower edge of a trigger which itself is pivoted to the stock on a horizontal axis. The notch is disengaged from the hook to release the bow string when the trigger is pivoted upward by rearward pressure of the archer's forefinger on the top end of the trigger.

3,757,764

DEVICE FOR ADJUSTING THE POSITION OF AN ARCHERY BOW ARROW REST

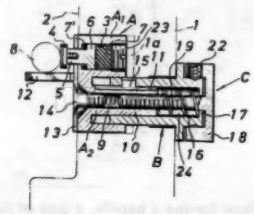
Fumihiro Ikeya, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Sept. 13, 1971, Ser. No. 179,628

Claims priority, application Japan, Sept. 14, 1970, 45/90701

Int. Cl. F41d *5/00*

U.S. Cl. 124—41 **10 Claims**



A device having a stationary member fixed to the grip portion of a bow, the member having a through hole therein, a movable member having an plate member transversely movable to various positions with respect to the movable member and an inner-threaded cylindrical section slidably inserted in the through hole of the stationary member, and a control member having an outer threaded extension engaged with the inner-threaded cylindrical section of the movable member. The rotation of the control member permits the sliding movement of the movable member, thus adjusting the lateral position of the arrow rest in the sight window of the bow. The movable member may further include a shock-absorbing arrow support, which absorbs the shocks caused when the arrow is released from the bow.

3,757,765

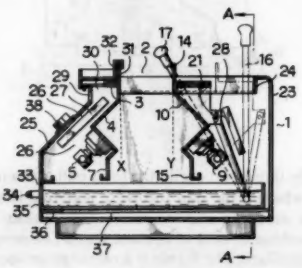
GRILLER

Eiichi Yamada, 3-9 Yotsuya, Shinjuku-ku, Tokyo, Japan

Filed Dec. 16, 1971, Ser. No. 208,702

Int. Cl. A47j *37/04*

U.S. Cl. 126—41 R **7 Claims**



A griller adapted to roast skewered fish, meat and the like that are laid on between loading plates made at ends of an opening part which is formed at the upper part of the case of the griller, with use of heat sources positioned respectively outwardly of vertical lines dropped from the opening part in such a way as to point to the said opening part.

3,757,766

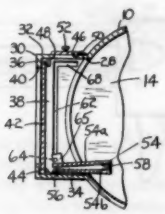
WOOD HEATER WITH VIEWING WINDOW

Robert L. Stevenson, 9003 W. Evans Creek Rd., Rogue River, Oreg.

Filed Oct. 26, 1971, Ser. No. 192,047

Int. Cl. F24m *9/00*

U.S. Cl. 126—60 **6 Claims**



A heater having an enlarged side window for viewing a fire within the heater. The window is supported in a side projecting window housing having top vent means serving to prevent soot from gathering on the inside surface of the window. A collapsible door is hinged at the bottom in the window housing and has a down or open position and an up or closed position, the latter position shielding the window from the firebox in the heater. Operating knobs are secured to the door and project through slots in the ends of the window housing. Such knobs have a locked position at the top of the slot for holding the collapsible door in its up position.

3,757,767

ROOM HEATING APPARATUS

Toshio Ito; Tamotsu Nomaguchi, and Tatsuo Saito, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1971, Ser. No. 187,638

Claims priority, application Japan, Oct. 8, 1970, 45/100408; Apr. 24, 1971, 46/17102

Int. Cl. F24h *3/08*

U.S. Cl. 126—110 B 12 Claims

A room heating apparatus using combustion gas having a linear type burner in the bottom or at one side thereof and a first heat exchanger substantially flat in configuration wherein a combustion gas is generated in an inner space of the first heat exchanger so that heat is transmitted to the outer part thereof. A second heat exchanger also being substantially flat in shape has an inner space which is connected to the inner space of the first heat exchanger so that the combustion gas being generated in the inner space of the first heat exchanger is passed to the inner space of the second heat exchanger and the heat thereof is transmitted to the outer surface thereof by a forcible convection current. Thus, the room heating apparatus is a compact heating apparatus having high thermal efficiency and the combustion occurs in a combustion chamber having high sealing efficiency to provide high efficiency of heating by heat radiation and forcible convection current.

3,757,768

MANIPULABLE SPRING GUIDE-CATHETER AND TUBE FOR INTRAVENOUS FEEDING

William M. Kline, Gloversville, N.Y., assignor to Medical Evaluation Devices and Instruments Corp., Gloversville, N.Y.

Continuation-in-part of Ser. No. 218,224, Jan. 17, 1972, abandoned. This application Apr. 7, 1972, Ser. No. 241,915

Int. Cl. A61m *25/00*

U.S. Cl. 128—2 M 7 Claims

This invention is directed to a manipulable, flexible, unitary, combined spring guide-catheter that includes an inner wall portion formed as a continuous helical spring with the helices in contact with each other and an outer wall portion formed from an inert plastic material enclosing the spring in such a manner as to become firmly bonded to the spring while having its outer surface smooth. The distal end of the outer wall extends beyond that of the inner wall to define a hollow tip that is provided with axial and/or radial perforations. A wire stylette is freely carried within the lumen of the inner wall; and the stylette and the spring guide-catheter are separately manipulable by suitable handles attached to the respective proximal ends thereof. A shorter length guide-catheter of this same construction, but without the wire stylette, may be used to replace the rigid tubes heretofore used for intra-venous feeding.

3,757,769

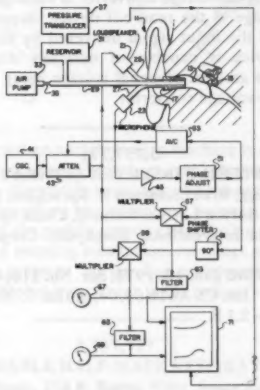
ACOUSTIC ADMITTANCE TESTING APPARATUS

Lawrence B. Arguimbau, Lancaster and Rufus L. Grason, Lincoln, both of Mass., assignors to Grason-Stadler Company, Inc., West Concord, Mass.

Filed Nov. 1, 1971, Ser. No. 194,268

Int. Cl. A61b *10/00*

U.S. Cl. 128—2 Z 21 Claims



Various characteristics of a patient's ear at the drum are tested by measuring, at the entrance of the ear canal, the complex acoustic admittance of the ear canal and the admittance at the eardrum together. An acoustic source including a first electro-acoustic transducer provides both an oscillatory air flow and a corresponding signal representing the flow. A second electro-acoustic transducer provides a pressure signal. The in-phase and quadrature components of the flow signal are then separately measured relative to the pressure signal while the static pressure in the ear canal is varied so as to controllably stiffen the eardrum, reducing its effect on the total complex admittance.

3,757,770

PHYSIOLOGICAL PRESSURE SENSING AND TELEMETRY MEANS EMPLOYING A DIODE CONNECTED TRANSISTOR TRANSDUCER

Forrest G. Brayshaw, and Theodore S. Roberts, both of Salt Lake City, Utah, assignors to Bio-Tel Western, Inc., Ogden, Utah

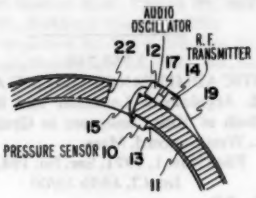
Filed Feb. 22, 1971, Ser. No. 117,589

Int. Cl. A61b *5/00*

U.S. Cl. 128—2 R 1 Claim

Pressure measurement apparatus and method, the apparatus having a pressure sensitive element, an audio oscillator, a transmitter, a receiver, a frequency-to-voltage converter and a read-out device. The pressure sensor is connected to and capable of varying the frequency of the audio oscillator as a function of the pressure applied to the sensor. The audio oscillator is connected to and capable of modulating the signal of the transmitter. The pressure sensor, audio oscillator and

transmitter are implanted internal to the scalp of a living test subject, the pressure sensor being placed between the skull and the dura mater. Additionally, a remote receiver is connected to a frequency-to-voltage converter and is capable of receiving the radio frequency signal transmitter by the transmitter and supplying the detected audio oscillation of the



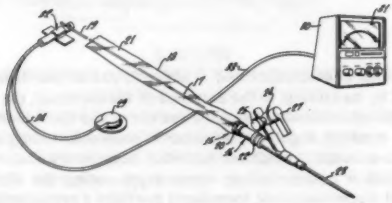
radio frequency signal to the frequency-to-voltage converter. The frequency-to-voltage converter is capable of supplying a variable voltage to the read-out device, depending upon the frequency of the input signal delivered by the receiver. The read-out device is capable of optically displaying and/or recording the amount of signal voltage being fed to it by the frequency-to-voltage converter.

3,757,771

STERILE INSERTER APPARATUS

Frank A. Ruegg, Brea; Stanford B. Spracklen, San Juan Capistrano, and Burton L. Cheatham, II, Costa Mesa, all of Calif., assignors to International Biophysics Corporation, Irvine, Calif.

Filed Jan. 10, 1972, Ser. No. 216,455
Int. Cl. A61b *05/04;* **A61m** *05/00*
U.S. Cl. 128—2.1 E **3 Claims**



An apparatus for sterile insertion of a catheter or like device into an in-dwelling cannula. The catheter is sterilized after being sealed within the inserter apparatus and is retained within a sterile field during and following the insertion procedure. The inserter apparatus provides an effective seal around even a very small catheter to prevent loss of blood or other fluids from the in-dwelling cannula.

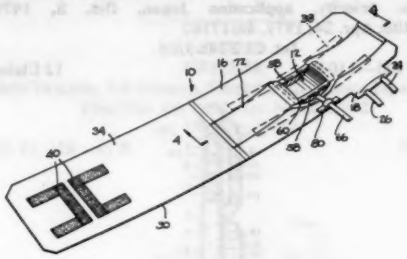
3,757,772

DISPOSABLE COMBINED SPHYGMOMANOMETER CUFF AND SOUND CHAMBER

Alexander Goldblat, 210 Central Park South, New York, N.Y., and Raymond Miller, 315 E. 86th St., New York, N.Y.

Filed Aug. 27, 1971, Ser. No. 175,488
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 G **1 Claim**

A sphygmomanometer cuff and sound chamber combined as a unit. The cuff embraces a pliant plastic bladder integral with a wrap-around plastic sleeve. Two air tubes extend from the bladder interior for engagement, respectively, with an air bulb and a manometer. The sound chamber comprises an arcuate shell of rigid plastic greater in length in the direction of curvature, with extending walls to define an open cavity, with a peripheral lip extending outwardly from the wall edges. A tube extends from a side wall of the chamber affording sound communication between the chamber interior and a



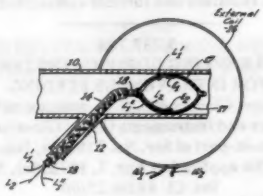
stethoscope secured to the free end of the tube. A sling is bonded to the shorter sides of the bladder undersurface to which the chamber is bonded centrally around its lip, with the cavity exposed. In another embodiment the chamber is recessed within a window in the bladder undersurface, with its cavity exposed. The cuff is secured adhesively.

3,757,773

EXTERNAL FIELD ELECTROMAGNETIC FLOW SENSOR-ARTERY

Alexander Kolin, Los Angeles, Calif., assignor to Regents University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 873,240, Nov. 3, 1969, abandoned, and a continuation-in-part of Ser. No. 166,235, July 26, 1971, abandoned. This application Mar. 22, 1972, Ser. No. 236,815
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 F **44 Claims**



An electromagnetic catheter type flow sensor and artery gauge combination is provided which may be introduced into a blood vessel to measure, for example, the blood flow in the blood vessel or variations in the diameter thereof, and which is constructed to collapse its transverse dimension into a narrow elongated configuration as it is introduced from the outside into a blood vessel. The gauge of the invention includes a means, such as a coil, external to the patient or animal, and separate from the catheter portion of the gauge, for generating a magnetic field in the blood vessel. Since no magnets need be incorporated into the catheter probe, which has merely to contain electrodes for the pick-up of the signal, the catheter probe can be made of extremely small transverse dimensions.

3,757,774

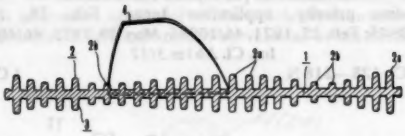
MASSAGE SANDAL

Kimio Hatuno, 372 Nobidome, Niiza, Saitama-ken, Japan

Filed May 15, 1972, Ser. No. 253,310
Claims priority, application Japan, Oct. 21, 1971, 46/83551
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 B **1 Claim**

A massage sandal having a base, a plurality of projections provided on the upper and lower surfaces of said base, and a

band fixed to said base, where said projections stimulate the sole of the foot to facilitate the circulation of the blood and strengthen the connective tissue of the sole of the foot by massaging the sole of the foot during the walking of the person who wears it. Therefore, the sandal is good for the health of the foot.



3,757,775

INTRA UTERINE DEVICE

Millicent L. Marco, and John L. Marco, both of Oakhurst, N.J., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 1,661, Jan. 9, 1970, which is a continuation-in-part of Ser. No. 654,744, July 20, 1967, abandoned. This application Dec. 22, 1970, Ser. No. 100,643

Int. Cl. A61f *5/46*

U.S. Cl. 128—130 **6 Claims**

An intra-uterine device comprises a substantially flat body member integrally formed of a resilient, flexible, organic plastic and includes a longitudinally extending bridge section and a pair of independently movable legs outwardly diverging from each end thereof. The legs may be partially contracted by a fluid decomposable string interconnecting the ends thereof. A draw string extends from the bridge section and includes an upper inert section and a lower body fluid decomposable section. An alternative structure includes a flexible bridge member and polygonal loops mounted on opposite ends thereof, one of the loops being provided with laterally longitudinally projecting opposite legs having free outer ends. The intra-uterine device is inserted by contracting the legs into side by side juxtaposition and supporting it with the bended apex section forwardmost in the distal end of a tubular instrument, inserting the instrument into the fundus and ejecting the device by advancing a plunger through the instrument. The instrument body member has a forward leading section with a smaller bore than the rear section which terminates in a funnel shaped mouth.

3,757,776

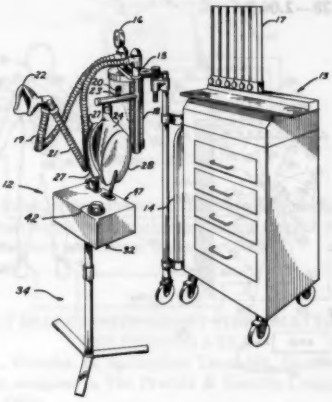
VENTILATOR FOR AN ANESTHESIA GAS MACHINE

Jack Bauman, P.O. Box 25310, Los Angeles, Calif.

Filed June 1, 1971, Ser. No. 148,580

Int. Cl. A61m *16/00*

U.S. Cl. 128—145.6 **6 Claims**



Located adjacent an anesthesia gas machine is a pair of opposed, concave paddles, relatively movable toward and away from each other, alternately squeezing and releasing a conventional, flexible, breathing bag interposed between the paddles. The frequency of the paddle opening and closing cycle can be controlled; and a warning mechanism monitors and indicates excessive back pressure during bag compression, thereby alerting the anesthetist to a change in the patient's responses.

3,757,777

DISPOSABLE HALF-MASK RESPIRATOR

Edward L. Kaufman, 216 E. Buena Vista, Santa Fe, N. Mex.

Filed Dec. 9, 1971, Ser. No. 206,482

Int. Cl. A61b *23/06*

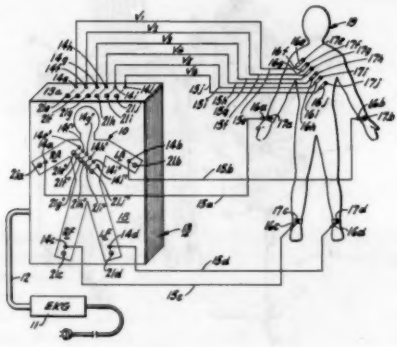
U.S. Cl. 128—146.2 **3 Claims**

A half-mask respirator comprising a high efficiency media filter and having a molded plastic edging or collar attached to the said media, said edging or collar composed of a thermal or catalytic setting plastic which is self-bonding to the filter media, and which is also molded in several individually different shapes to closely approximate an individual wearer's face shape and to which is applied a thin layer of uncured, non-toxic, catalytic, low temperature or thermo-setting plastic which is then positioned on the wearer's face and thus will provide a very high efficiency seal between the filter media and the wearer's face.

3,757,778
ELECTROCARDIOGRAPH LEAD DISTRIBUTION AND CONTACT TESTING APPARATUS

Martin H. Graham, Berkeley, Calif., assignor to Comprehensive Health Testing Laboratories, Inc., San Francisco, Calif.

Filed Jan. 13, 1971, Ser. No. 106,008
Int. Cl. A61b 5/04
U.S. Cl. 128—2.06 R 5 Claims

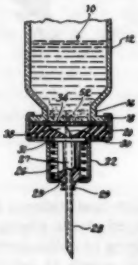


An electrocardiograph apparatus including a recorder electrically connected by a patient cable to a number of electrical terminals in a distribution head so that each terminal forms a contact point for a series of lead wires each adapted to receive electrical impulses from a selected location of the patient's body. To assist verification of correct interconnection, the distribution head incorporates the configuration of a schematic representation of the body with the position of each distributor terminal corresponding to actual examination locations on the patient. As another verification check, the lead wires may be of varying length corresponding to the distance between the terminals and the patient's contact points. An indicator light in the electrocardiograph circuit is de-energized upon establishing connection with the patient to indicate satisfactory contact. Electronic circuitry is provided for comparing and controlling various voltages and reference ground with the patient to derive standard output signals commonly used in EKG analysis.

3,757,779
FILTER SYRINGE

Walter M. Rovinski, Turnersville, N.J., assignor to Century Laboratories, Inc., Metairie, La.

Filed May 24, 1971, Ser. No. 146,271
Int. Cl. A61m 5/00
U.S. Cl. 128—218 M 1 Claim

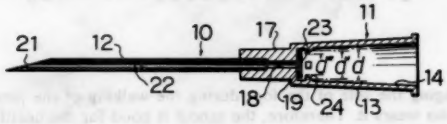


A syringe for the injection of liquid having a diaphragm sealing the open end thereof and a filter member between the diaphragm and the open end of the vial with a hollow needle mounted for reciprocal movement between retracted position beyond the diaphragm and operated position piercing the diaphragm but not piercing the filter member.

3,757,780
NEEDLE ASSEMBLY WITH LONGITUDINALLY MOVABLE FILTER

Soji Ishikawa, Tokyo, Japan, assignor to Kabushiki Kaisha Ishikawa Susakusho, Tokyo, Japan

Filed Nov. 4, 1971, Ser. No. 195,571
Claims priority, application Japan, Feb. 25, 1971, 46/10945; Feb. 25, 1971, 46/10946; May 20, 1971, 46/40176
Int. Cl. A61m 5/32
U.S. Cl. 128—218 N 1 Claim



A needle assembly for use with a medical injector such as a syringe or drip set. The needle assembly is provided with a filter element in a fluid passage formed therein for completely removing dust particles which might exist in a dosage solution or in a blood transfusion when injected or dripped into a human body.

3,757,781
TOOL FOR ADMINISTERING PILLS TO ANIMALS

Ray F. Smart, P.O. Box 686, Boerne, Tex.

Filed Sept. 17, 1971, Ser. No. 181,533
Int. Cl. A61d 7/00; A61m 31/00
U.S. Cl. 128—223 2 Claims

An elongated hollow sleeve having a split sleeve member constructed of resilient material telescoped over one end thereof and including a plunger insertable in the other end of the sleeve. The other end of the sleeve and the plunger include coacting portions for support of the tool in one hand and manipulation of the plunger for projecting the latter through the sleeve and into the sleeve member whereby a tablet or capsule frictionally supported within the split sleeve member may be ejected therefrom by the plunger when the tool has been positioned with the split sleeve member disposed in the back of the mouth of an animal to which a medicant is to be administered. In addition, the tool further includes a squeeze bulb removably engageable with the end of the sleeve remote from the sleeve member after removal of the plunger in order that the tool may also be used in the manner of an eye dropper for administering liquid medicants.

3,757,782
FLUID PRESSURIZABLE SWAB APPLICATOR FOR MEDICAMENT, ANTISEPTIC OR THE LIKE

Winthrop J. Aiken, St. Petersburg, Fla., assignor to Vivian C. Aiken, St. Petersburg, Fla., a part interest

Filed June 5, 1972, Ser. No. 259,919
Int. Cl. A61m 35/00
U.S. Cl. 128—269 6 Claims

A swab-type applicator for a treatment liquid, such as a medicament or antiseptic solution, includes an elongated tubular member of relatively small diameter fabricated of a transversely flexible, preferably transparent, synthetic plastic material chemically inert to the solution, as encapsulated in said member. The latter is provided at both ends with a rup-

turable sealing element in the form of a thin closure disc or membrane; this confines within the applicator tube a charge of the liquid treatment medium or solution until manual squeezing pressure on the tube between the temporarily sealed ends causes the medium to rupture one or both of the sealing elements. The tube ends are completely embedded axially in cotton or equivalent applicator swabs which are saturated upon rupture of the tube end seals. Two versions of the device are

disclosed, in one of which the rupturable seal elements alone confine the charge of solution in a full tube bore length between its ends, and in another of which a small separating and sealing plug is permanently seated within the wall of the tube at its mid-point. This permits a selective squeezing and end-rupturing compression of the tube at sub-lengths at either side of said separator element, temporarily leaving intact the rupturable sealing element for the opposite tube sub-length.

3,757,783

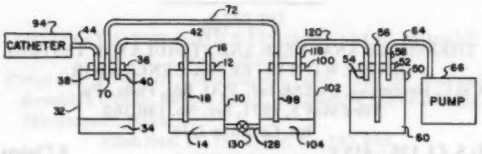
SUCTION DRAINAGE APPARATUS

Ralph D. Alley, Loudonville, N.Y., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Sept. 24, 1971, Ser. No. 183,332

Int. Cl. A61m 1/00

U.S. Cl. 128—277 **16 Claims**



Suction drainage apparatus for use in conjunction with vacuum sources of the type that may fail in either an "open" or a "closed" state. The system includes a trap chamber having an inlet adapted to be connected to a catheter for receipt in a body cavity and an outlet connected to a pressure regulation device which, in turn, is connected to the vacuum source. To preclude pressure buildup within the body cavity of the patient in the event of vacuum failure in the "closed" state, a pressure release path from the trap chamber is provided. To prevent backflow of ambient air into the body cavity of the patient in the event the vacuum source fails in an "open" state, a backflow precluding device in the vacuum flow path is provided.

3,757,784

NURSING SUPPLEMENTER

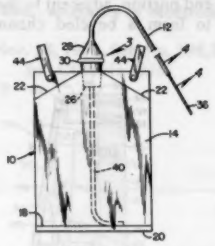
John Richard Avery, Denver, Colo., assignor to J. J. Avery Inc., Denver, Colo.

Filed Sept. 1, 1971, Ser. No. 177,071

Int. Cl. A61m 1/06

U.S. Cl. 128—281 **13 Claims**

Method and apparatus for supplementing breast feeding characterized by an unvented collapsible liquid food supply bag. A feeding tube connected therewith having an end disposed within the mouth of the baby, the bag being so located relative to the breast nipple to compel simultaneous suckling effort on the breast nipple and feeding tube to provide flow through the tube, thus also providing suckling effort on the breast nipple to provide stimulation thereof with its attendant tendency to increase breast lactation.



3,757,785

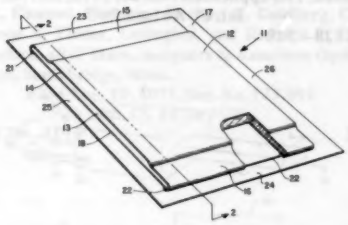
AIRFELT DIAPER WITH SHORT FIBER MATERIAL IN THE PINNING AREA

Charles L. Wosaba, II, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 9, 1971, Ser. No. 208,043

Int. Cl. A61f 13/16

U.S. Cl. 128—287 **3 Claims**



A diaper wherein the absorbent body is of low tensile strength, e.g., airfelt, and the absorbent body extends throughout the pinning area, wherein the airfelt material in the pinning area has an average fiber length of from about 0.5 mm. to about 0.9 mm. so that those fibers do not accumulate on a pin as the pin tip moves through the absorbent body during pinning of the diaper.

3,757,786

SYNTHETIC SURGICAL SUTURES

David F. Smith, 120 Grove St., Bay Head, N.J.

Filed Nov. 6, 1970, Ser. No. 87,603

Int. Cl. A61l 17/00

U.S. Cl. 128—335.5 **13 Claims**

Synthetic surgical sutures with a controllable range of properties are made from water-insoluble metal salts of cellulose acid ethers.

3,757,787

SURGICAL CLAMP FOR CIRCUMCISION

Nathan Gottlieb, 516 E. 28th St., Paterson, N.J.

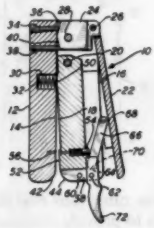
Filed Feb. 9, 1971, Ser. No. 113,983

Int. Cl. A61b 17/08, 17/326

U.S. Cl. 128—346 **1 Claim**

A surgical clamp for circumcision operations, adapted to be held and operated by one hand, which includes in a single unit a pair of clamping members having cooperating clamping sur-

faces operatively associated with means for locking the surfaces to provide a line of excision and for unlocking the surfaces after the operation. Each clamping member is provided with a beveled end portion, adjacent to the clamping surfaces, which coacts to form a beveled channel for guiding the



prepuce and membrane toward the clamping surfaces and which also leads into an oval concavity provided in the clamping members to safely depress the glands away from the clamping surfaces during the operation, facilitating the gauging of the amount of prepuce and membrane to be excised along a clean, well-coated line.

3,757,788

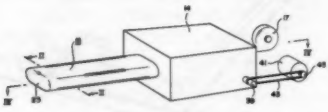
PRYING AND/OR FRICTIONLESS PROBING DEVICE

Hiram H. Renfroe, 505 Burns, West Memphis, Ark.

Continuation-in-part of Ser. No. 94,664, Dec. 3, 1970, abandoned. This application Feb. 28, 1972, Ser. No. 229,775

Int. Cl. A61m *25/00*

U.S. Cl. 128—348 **5 Claims**



A device having an unlimited number of uses. Certain of these uses depend upon the physical size of the device, etc. For example, one such size enables the device to be used as a catheter for unblocking clogged arteries of the human body, another size enables the device to be used to insert exploratory sensing elements such as a microminiaturized television camera into certain cavities or ducts of the human body. Additionally, larger sizes might include a plurality of such devices grouped into a battery arrangement to lift and/or separate surfaces or objects having considerable weight, such as lifting a non-ambulatory patient from his bed or the like. Further, still larger sizes might be so arranged as to be capable of lifting an airplane which may have landed wheels up or for many other well known reasons conventional jacking apparatus may be unfeasible.

The principle of operation can easily be understood by comparing it to inflating a long balloon which was disposed inside out while in the deflated state, and the inflating or elongation process thereof proceeeds along the length thereof having the outside surface reversed gradually and only at the extreme end thereof until the balloon is fully extended. The device includes an elongated flexible tubular member which resembles a balloon in that it is controllably inflated but which is not resilient as is a balloon. The device optionally includes telescoping rigid tubular sections which are pulled within the flexible tubular member to aid in supporting the expanded flexible tubular member. A second embodiment includes structure particularly adapted for lifting a patient from his bed or the like. The concept of this embodiment is to counteract the tendency of certain prior devices to curl upwardly after having worked under one leg of the patient, i. e., extend between his legs rather than beneath both legs, as desired. A third embodiment includes ties for causing the flexible tubular member to be elongated in cross section rather than round when inflated.

3,757,789

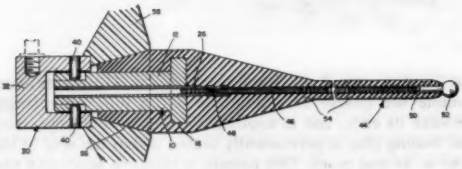
ELECTROMEDICAL STIMULATOR LEAD CONNECTOR

Irvin P. Shanker, Huntingdon Valley, Pa., assignor to ESB Incorporated, Philadelphia, Pa.

Filed Oct. 26, 1971, Ser. No. 192,151

Int. Cl. A61n *1/02*

U.S. Cl. 128—404 **4 Claims**



An electrode system for use in conjunction with body implantable electro-medical devices is disclosed. The system includes a socket having first coupling means. The socket forms an electrical output terminal of the electro-medical device. A plug forms a part of the system and is disposed on the proximal end of an electrical conductor which also forms a part of the system. The plug comprises an electrical connector secured to the conductor and having second coupling means, and a compressible resilient means. The resilient means provides a locking biasing force between the first and second coupling means when the plug and socket are coupled.

3,757,790

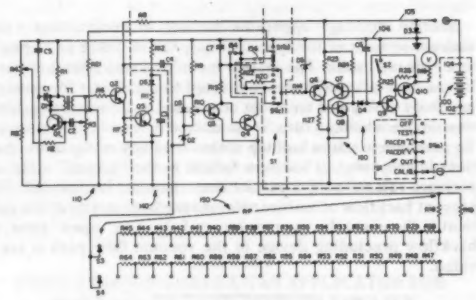
THRESHOLD ANALYZER AND STIMULATOR TESTING DEVICE WITH INTERNAL GENERATOR

Cal C. Herrmann, c/o ESB Inc., P. O. Box, Phila., Pa.

Filed May 5, 1971, Ser. No. 140,360

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 P **8 Claims**



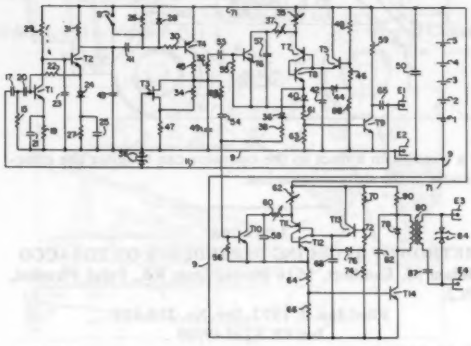
A threshold analyzer including a stimulator testing device measures the minimum impulse energy required to stimulate a body organ using the actual body implanted stimulating electrode system. A stimulating device to be implanted in the body may be connected to the implanted electrode system and its output impulse energy measured. Means are provided to calibrate the threshold analyzer stimulator testing device so that readings taken at different times as well as on different patients will be suitable for correlation. Readings are indicated in terms of true current and voltage values.

3,757,791

SYNCHRONIZED ATRIAL AND VENTRICULAR PACER AND TIMING CIRCUITRY THEREFOR

Barouh V. Berkovits, Newton Highlands, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Dec. 30, 1971, Ser. No. 214,218
Int. Cl. A61m 1/36
U.S. Cl. 128—419 P 11 Claims



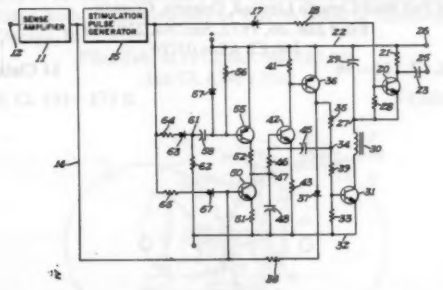
There is disclosed an atrial and ventricular pacer which features a unique pacer timing circuit dependent upon voltage supply level only under certain conditions, and in which the atrial and ventricular pulsing circuits are synchronized to each other even if the ventricular beat detector fails or ventricular beat signals are masked by noise. In prior art pacers of this type, in the event the pacer operates in the continuous mode both pulsing circuits operate independently of each other. But in the present pacer the generation of a ventricular stimulating pulse re-starts the atrial timing period.

3,757,792

AUTOMATIC THRESHOLD COMPENSATING DEMAND PACEMAKER

Pieter M. J. Mulier, Minneapolis, and John R. Helland, Brooklyn Center, both of Minn., assignors to Medtronic Inc., Minneapolis, Minn.

Filed Nov. 11, 1971, Ser. No. 197,895
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 28 Claims



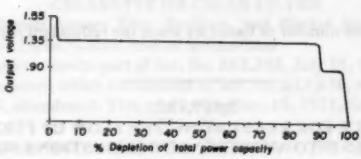
In a demand cardiac pacer having means for providing periodic stimulating pulses to the heart, means for sensing natural heartbeats, and means for inhibiting the stimulating pulses on the occurrence of natural heartbeats, the improved apparatus including means for sensing stimulated heartbeats, means for decreasing the amplitude of a succeeding stimulating pulse on the occurrence of a stimulated heartbeat and means for increasing the next succeeding stimulating pulse by a predetermined amount on the failure to sense a stimulated heartbeat.

3,757,793

ELECTROCHEMICAL CELL WITH STEPPED VOLTAGE OUTPUT

Keith E. Fester, Roseville, and Richard L. Doty, White Bear Lake, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 15, 1971, Ser. No. 198,823
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 4 Claims



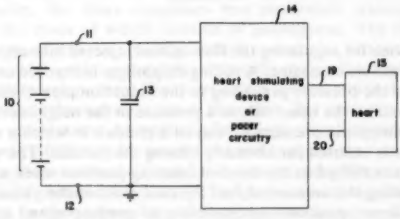
An electrochemical cell is provided having a stepped voltage output during its lifetime due to multiple composition anode and cathode construction. The stepped output voltage provides a beginning of life (BOL) voltage indication, a voltage output indicative of the main capacity of the cell, and an end of life (EOL) output voltage indication warning the user that the total battery capacity is nearly exhausted.

3,757,794

TEMPORARY POWER SUPPLY FOR A HEART-STIMULATING DEVICE

Robert L. Cannon, Waltham; Herbert E. Goldberg, Concord; Sherwood S. Thaler, Lexington, and Richard F. Daynard, Chelmsford, all of Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Aug. 19, 1971, Ser. No. 173,091
Int. Cl. A61m 1/36
U.S. Cl. 128—419 P 3 Claims



A temporary power supply for a heart-stimulating device. Apparatus is disclosed that provides temporary power to a battery-powered pacer during the time of battery replacement. In an illustrative embodiment of the invention, a capacitor circuit is used for this purpose.

3,757,795

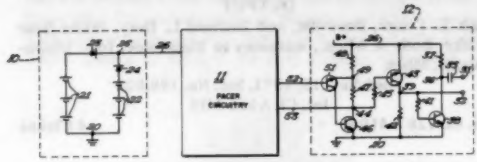
POWER SUPPLY AND VOLTAGE DOUBLE OUTPUT CIRCUITRY FOR IMPLANTABLE ELECTRO-MEDICAL APPARATUS

Robert K. Anderson, Minneapolis, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Continuation of Ser. No. 770,965, Oct. 28, 1968, abandoned.
This application Feb. 11, 1971, Ser. No. 114,734
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 7 Claims

Implantable electrical medical apparatus having a redundant power supply to overcome problems of battery failure,

and in combination with an output voltage doubler to avoid increasing the number of batteries when the redundant supply is used.



3,757,796

DEVICE FOR REGULATING THE FLOW OF FUEL INJECTED INTO AN INTERNAL COMBUSTION ENGINE

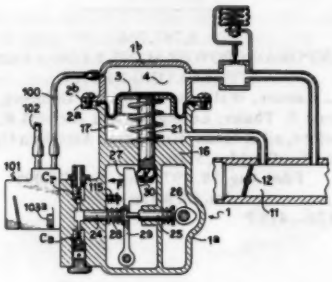
Guy Boue, Bavans, and Marcel Vidberg, Montebeliard, both of France, assignors to Automobiles Peugeot, Paris and Regie Nationale Des Usines Renault, Billancourt, France

Filed May 15, 1972, Ser. No. 253,422

Claims priority, application France, June 17, 1971, 7121982

Int. Cl. F02d *1/14*

U.S. Cl. 123—97 B **6 Claims**



Device for regulating the flow of fuel injected into an internal combustion engine. A rolling diaphragm is exposed on one side to the pressure prevailing in the induction pipe of the engine and on the other side to a pressure in the neighbourhood of atmospheric pressure by way of a conduit in which a valve device is inserted for normally closing the conduit. The valve device is shifted to the conduit opening position when a cam regulating the amount of fuel injected reaches the vicinity of an extreme position corresponding to predetermined conditions of engine operation.

3,757,797

COMBINE

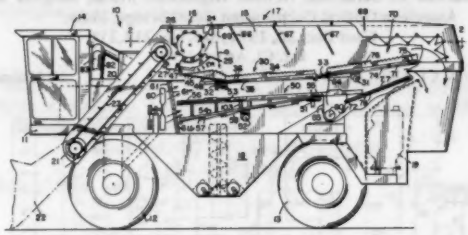
Bernard C. Mathews, P.O. Box 70, Crystal Lake, Ill.

Continuation-in-part of Ser. No. 132,727, April 9, 1971, which is a continuation-in-part of Ser. No. 818,295, April 22, 1969, Pat. No. 3,606,026. This application Oct. 4, 1971, Ser. No. 186,053

Int. Cl. A01f *12/30*

U.S. Cl. 130—24 **15 Claims**

The combine has a threshing cylinder, upper and lower sieves and a recovery sieve all located in the upper part of the casing, with the grain bin below. A fan is located forwardly of the lower sieve. The upper and lower sieves are vibrated with an orbiting motion which cooperates with the air stream from said fan to separate grain from the threshing mix on the sieve surface. The upper and recovery sieves have fish backs which maintain the straw in a bed above the sieve surface. The air stream blows the chaff up into the straw bed of the upper sieve. A dam between the upper and tailings sieve controls the depth of the straw bed. Tailings and clean grain from the recovery sieve are returned to the threshing cylinder and pass by a window in a duct so the operator can monitor the effectiveness of the sieve mechanism.



3,757,798

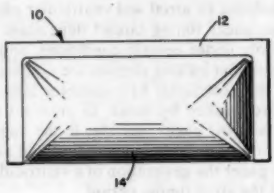
METHOD OF REDUCING DEPENDENCE ON TOBACCO

William M. Lambert, 1516 Beaver Dam Rd., Point Pleasant, N.J.

Filed Jan. 3, 1972, Ser. No. 215,010

Int. Cl. A24f *47/00*

U.S. Cl. 131—1 **4 Claims**



A method or reducing dependence on cigarette smoking or tobacco which comprises placing sequentially in the mouth a series of infusion bags containing tobacco in decreasing amounts.

3,757,799

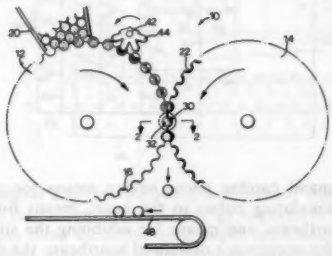
TOBACCO RECLAIMING METHOD AND APPARATUS

Daniel Di Ianni, Toronto, Ontario, and Warren A. Brackmann, Cooksville, Ontario, both of Canada, assignors to Rothmans of Pall Mall Canada Limited, Ontario, Canada

Filed Jan. 26, 1972, Ser. No. 220,969

Int. Cl. A24c *05/36*

U.S. Cl. 131—96 **11 Claims**



Tobacco is reclaimed from cigarettes by a method which includes first radially compressing the tobacco in the cigarette wrapper and subsequently blowing the compressed tobacco out of the wrapper.

3,757,800
APPARATUS FOR CLASSIFYING FRAGMENTS OF TOBACCO

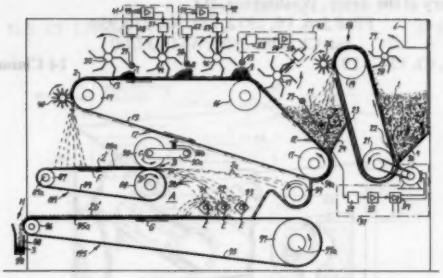
Harry David, Hamburg, and Willy Rudszinat, Dassendorf, both of Germany, assignors to Hanne-Werke Korber & Co. KG, Hamburg, Germany

Filed Dec. 15, 1970, Ser. No. 98,349

Claims priority, application Great Britain, Dec. 22, 1969, 62,446/69

Int. Cl. A24c *1/02*

U.S. Cl. 131—109 B **9 Claims**



Apparatus for segregating relatively light shredded tobacco leaf laminae from heavier particles of tobacco ribs and stem has a fee ing device which showers a mixture of lighter and heavier particles onto the upper stretch of a rapidly moving classifying belt which propels the particles beyond one of its ends whereby the heavier particles are segregated from lighter particles because their flight span is longer than that of the shreds. The lighter particles are thereupon spread apart by a battery of horizontal winnowers of rectangular cross-sectional outline which distribute such particles on the upper stretch of a collecting belt which moves counter to the direction of travel of the upper stretch of the classifying belt. The feeding device has a carded belt which transports a sliver of intermixed lighter and heavier particles and from which a picker roller removes successive increments of the sliver to shower the particles onto the upper stretch of the classifying belt. The heavier particles are collected in a trough and are evacuated by a rotating screw.

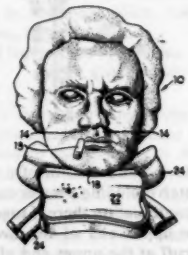
3,757,801
NOVELTY SMOKING APPARATUS

Jeffrey D. Breslow, Highland Park, and Eugene Jaworski, Park Ridge, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 4, 1972, Ser. No. 223,446

Int. Cl. A24f *13/00*

U.S. Cl. 131—171 R **5 Claims**



A novelty smoking apparatus which includes a generally hollow housing within which is mounted a bellows for applying suction to a smoking device, such as a cigarette or the like, received in an aperture in the housing. Smoke is drawn from the cigarette on expansion of the bellows and is exhausted from the housing through a second aperture on contraction of the bellows. The bellows is actuated by a battery operated motor mounted within the housing. The motor operates a sound reproducing apparatus for producing coughing sounds as the cigarette is smoked by the bellows. The sound reproducing apparatus also is mounted within the housing to provide a self-contained unit.

3,757,802
CIGARETTE OR CIGAR FILTER

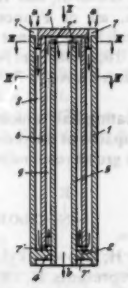
Josef Streule, untere Klus, Brulisau, and Blasius Brot, Vonwilstr. 15, St. Gallen, both of Switzerland

Continuation-in-part of Ser. No. 842,205, July 16, 1969, abandoned, which is a division of Ser. No. 613,876, Feb. 3, 1967, abandoned. This application Dec. 15, 1971, Ser. No. 208,456

Claims priority, application Switzerland, Feb. 8, 1966, 2031/66

Int. Cl. A24f *01/16*

U.S. Cl. 131—187 **3 Claims**



Throw-away filter for cigarettes, cigars, cigarette holders and tobacco pipes, comprising at least in part polystyrene portions having the ability to retain an electrostatic charge. Preferably, the filter comprises two concentric telescopic units, the inner of which consists of polystyrene. The units define plural reversing passages which pass smoke, but tend to trap harmful solids on the electrostatically charged surfaces of the polystyrene portion. The outer unit is tubular and is closed at the upstream end and open at the other. The upstream closure in one instance, comprises a flat flange extending radially outwardly of the tubular portion thereof to space the same inwardly of an outer shell and has smoke passing slots in the peripheral portion of the same. The open end of the outer unit also has smoke passing slots whereby smoke may pass radially inwardly of the filter as it reverses direction, and leaves the filter through the downstream end of the inner unit which is also tubular and open at both ends thereof.

3,757,803
ELECTROSTATIC CIGARETTE FILTERING ARRANGEMENT

Ta-Kuan Chiang, 923 Mountain Ave., Berkeley Heights Township, Union County, N.J.

Filed Oct. 2, 1972, Ser. No. 294,087

Int. Cl. A24f *13/04*, *13/08*

U.S. Cl. 131—188 **4 Claims**

A cigarette holder is disclosed which establishes a nonuniform electric field in a cigarette so that not only positvely and negatively charged particles entrained in the cigarette smoke may be precipitated but also so that neutrally charged particles may be precipitated. Neutrally charged particles are polarized by the presence of the electric field. Once polarized, the nonuniform entensity of the electric field exerts a net mechanical force on the particle causing it to be precipitated. The nonuniform electric field is provided between one or

more needle-like electrodes which pierce the tobacco or filter tip of the cigarette and a surrounding cylindircal electrode. A

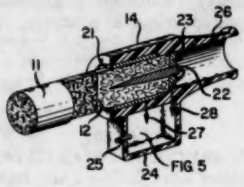


FIG 5

power supply energizes the electrodes with sufficient voltage to provide a polarizing electric field at an intensity below the threshold that would ionize particles.

3,757,804

PRODUCT FOR TREATING HAIR

Gregoire Kalopissis, Paris; Jean-Louis Abegg, Le Perreux, Valde-Marne; Guiliana Ghilardi, and Henri Philippe De Beaulieu, both of Paris, all of France, assignors to Societe Anonyme dite L'Oreal, Paris, France

Filed July 18, 1968, Ser. No. 745,667

Int. Cl. A45d 7/04

U.S. Cl. 132—7 **1 Claim**

New product for treating hair which comprises at least one methylol compound capable of polycondensation or polyaddition which comprises a group responding to the formula:

$$-\overset{\overset{R}{|}}{N}-CH_2OR'$$

in which R represents H, a lowr alkyl, hydroxymethyl, or alkoxymethyl, and R′ represents H, or a lower alkyl, said N being attached to a remainder which is sufficiently electrophile to prevent the immediate release of formol; and

an alkaline salt of a sulphur acid in which the sulphur is at the fourth degree of oxidation and capable of forming a stable compound with formol.

3,757,805

COIN COUNTING APPARATUS

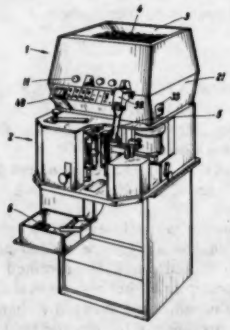
Werner Puhahn, Phillippsburg, Krs. Bruchsal, and Rolf Lampert, Bauschlott, both of Germany, assignors to Standardwerk Eugen Reis GmbH, Bruchsal/Baden, Germany

Filed Nov. 30, 1971, Ser. No. 203,337

Claims priority, application Germany, Dec. 1, 1970, P 20 59 007.2

Int. Cl. G07d 9/00

U.S. Cl. 133—8 R **7 Claims**



Coin counting apparatus comprising a centrifugal turntable above which an annular flat member is adjustably mounted. The member covers approximately half the area of the disk about its periphery to form a space in which the coins are arranged in flat, single layer position. Means are provided for adjusting the space to selected thickness coins, for discharge of irregular coins, and for operation of a counting mechanism.

3,757,806

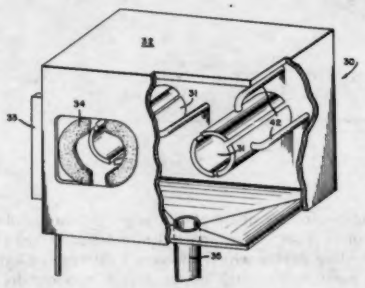
PULSATING HYDROJET LAVAGE DEVICE

Surindar N. Bhaskar, Bethesda; Duane E. Cutright, Chevy Chase, and Arthur Gross, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 19, 1972, Ser. No. 218,950

Int. Cl. B08b 3/02; A61h 33/00

U.S. Cl. 134—191 **14 Claims**



A pulsating hydrojet lavage device comprising (a) curvilinear manifold means arranged about a longitudinal axis, including fluid inlet means and fluid outlet means, (b) a pump for pumping with pulsating pressure a washing fluid, and (c) supply means for conveying the washing fluid from the pump to the manifold means. The washing fluid may be a mixture of water, detergents and antiseptic liquids. One purpose of the device is to prepare quickly medical personnel for surgical operations.

3,757,807

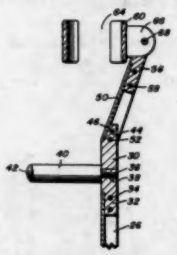
ORTHOPEDIC DEVICE

Joseph Manzo, P.O. Box 407, Providence, R.I.

Filed Apr. 19, 1971, Ser. No. 135,099

Int. Cl. A45b 1/00

U.S. Cl. 135—47.5 **8 Claims**



An orthopedic device in the form of a crutch or cane assembly with the crutch including a lower column and an upper column forming a continuation thereof together with a handle or handgrip at the upper end of the lower column and a forearm engaging cuff at the upper end of the upper column and the cane including an upward extension from the handle having a wrist engaging cuff thereon. By constructing the assembly of structural components which are capable of disassembly and interchange with other structural components having selected dimensions and configurations, the assembly

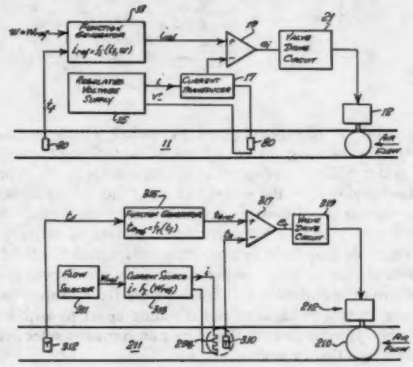
may be employed as a crutch in which the cuff engages the forearm or as a cane in which the cuff engages the wrist for stabilization thereof.

3,757,808

ELECTRONIC MASS AIRFLOW SENSING AND CONTROL SYSTEM

Frederick L. Peterson, Palos Verdes Peninsula, Calif., and George F. Paclik, Mississauga, Ontario, Canada, assignor to The Garrett Corporation, Los Angeles, Calif.

Filed July 21, 1972, Ser. No. 274,121
Int. Cl. G05d 7/06; G01f 1/00
U.S. Cl. 137—2 **37 Claims**



Two sensing elements are disposed in a ducted fluid stream whose mass flow rate is to be sensed and is to be controlled by a valve. One sensing element provides a signal as a measure of the temperature of the fluid. The other element is electrically energized at a known power level so that it assumes a temperature different from that of the fluid, and experiences an exchange of enthalpy with the fluid. This element provides a signal as a measure of its own temperature. The two sensing elements are coupled with the valve in a closed loop relationship by electronic sensing and control circuitry. This circuitry processes the signals from the two sensing elements to generate a signal equivalent to the fluid mass flow rate, and causes control action to regulate the mass flow rate to a desired value. Other transducers may be coupled to the circuit to automatically reset the regulated flow rate as a function of other parameter signals which may be either dependent or independent of the properties of the fluid.

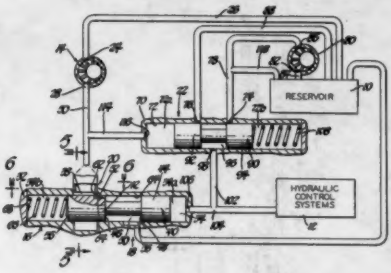
3,757,809

LINEAR GOVERNOR

Philip A. Le Bar, Jr., Belleville, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 22, 1971, Ser. No. 200,871
Int. Cl. G05d 13/40
U.S. Cl. 137—47 **5 Claims**

This disclosure relates to a hydraulic governor which includes fixed displacement pump means for providing a fluid flow proportionate to the speed it is driven. The hydraulic governor also includes flow control valve means for controlling the communication of the fixed displacement pump means with an exhaust and which has variable orifice means for varying the restriction of the fluid flow. The hydraulic governor further includes pressure regulator valve means which is in fluid communication with the pump means and which is responsive to variations of the fluid flow pressure from a predetermined value for regulating the pressure of a control fluid as a substantially linear function of the speed of the pump drive. The pressure regulator valve means is in fluid communication with the flow control valve means for the variable orifice means to vary the restriction of the fluid flow in



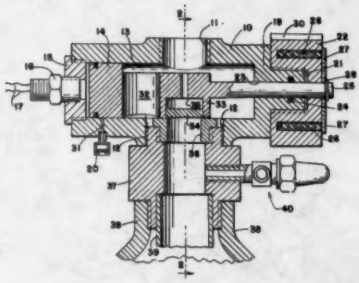
response to variations in the control fluid pressure to correct the fluid flow pressure to the predetermined value.

3,757,810

SHEAR VALVE AND FRANGIBLE FITTING

George S. Covarrubias, La Puente, Calif., assignor to C B F Systems, Inc., Covina, Calif.

Filed Jan. 11, 1972, Ser. No. 217,013
Int. Cl. F16k 13/06; B67b 7/00
U.S. Cl. 137—68 **10 Claims**



A frangible valve which may be operated manually by explosive charge, or by a solenoid. The valve includes a frangible fitting made of metal so as to be leak-proof. When the valve is opened, a metal disk is sheared away from the fitting and a hollow cylinder is placed over the sheared portion, aiding in the transfer of a pressurized fluid. A pilot rod extends from the operating piston through a guide hole to insure proper alignment. An external nut can be operated to break the frangible portion, after which a compressed spring completes the operation and retains the hollow cylinder in axial alignment.

3,757,811

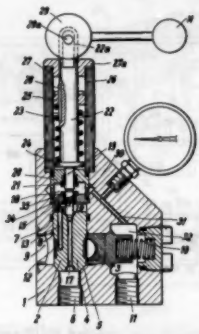
PRESSURE REGULATOR

Erich Broker, Oelde, Germany, assignor to Paul Hammelmann Maschinenfabrik, Oelde/Westf., Germany

Filed Sept. 10, 1971, Ser. No. 179,294
Int. Cl. F16k 31/38
U.S. Cl. 137—116 **5 Claims**

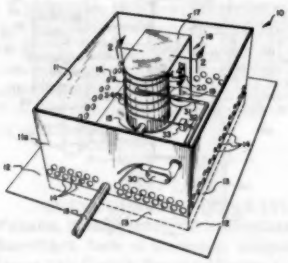
A pressure regulator has an overflow valve the valve body of which is configurated as a stepped piston and cooperates with a spring-loaded bolt. Between the bolt and the stepped piston is located an actuating member which is connected in turn with a smaller-diameter valve needle and which controls the

flow through an outlet channel in the stepped piston. In the region of their juncture the actuating member and valve needle



are exposed to the fluid pressure at a user device to which the pressure regulator supplies fluid.

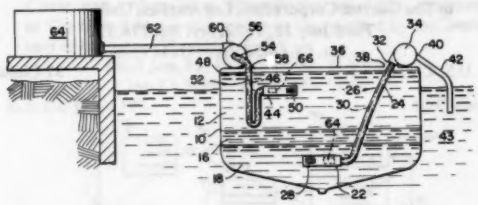
3,757,812
ROOF STANDING WATER ELIMINATOR
James E. Duncan, 1489 N. 400 West, Bountiful, Utah
Filed Jan. 3, 1972, Ser. No. 214,651
Int. Cl. F16l *43/00*
U.S. Cl. 137—142 **6 Claims**



An apparatus for draining standing water from low areas in a flat roof surface. The apparatus is contained in a housing whose base is closed and is sealed in such a low area. Water accumulated on the roof surface draining into such a low area flows into the housing of the invention through appropriate holes formed therein. A float arrangement within the housing senses accumulated water and activates a pump therein to exhaust through a drain line water from the roof area. The float arrangement senses the exhaustion of accumulated water from the low spot and automatically cuts off electrical power to the pump turning off the system until another water accumulation is sensed. A heating arrangement, combining a thermostat with a source of electrical energy that is distinct from the electrical flow through the float arrangement and pump, is provided within the housing to protect against freezing.

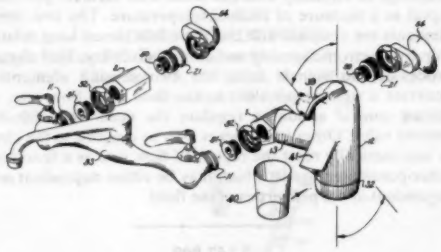
The standing water eliminator is arranged to exhaust water from a roof surface through a main discharge line leading from the roof surface. Suction lines coming from other low areas on the roof surface, connected to the main line at a point below the roof eave, so that when water flows through the main discharge line each suction line has a suction created therein, that draws water through the line into the main discharge line. Siphon flow through each of the suction lines, once begun, will continue until water is eliminated from the low area within which the suction line is positioned.

3,757,813
APPARATUS FOR TRANSPORTATION AND SEGREGATED EMPTYING OF VESSELS CONTAINING FLUIDS OF DIFFERENT DENSITY
Nathan Levenberg, 2 Windsor Pl., Lynbrook, N.Y.
Filed July 21, 1971, Ser. No. 164,509
Int. Cl. B43b *43/06*
U.S. Cl. 137—172 **6 Claims**



A method of transporting oil by vessel which includes discharging an oil cargo at a destination and refilling the vessel with a water ballast, transporting the vessel to an oil supply area, discharging only the water ballast at the oil supply area while retaining any oil-water mixture within the vessel. Apparatus is provided which automatically maintains delivery of only a single density fluid by operating only within the fluid to be delivered and ceasing to operate when in a different fluid. In an alternative embodiment, conduits are fixed in the vessel with their ends a predetermined distance apart to withdraw selectively different density fluids by pump means selectively controlled by a float member.

3,757,814
LIQUID CONTROL AND DISPENSING
Hayden C. Hill, 4798 Excelente Dr., Woodland Hills, Calif.
Filed Oct. 14, 1971, Ser. No. 189,360
Int. Cl. F16k *51/00*
U.S. Cl. 137—268 **11 Claims**

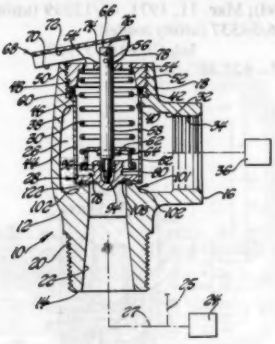


My invention relates generally to a controlled liquid system outlet contrivance with or without various filter and process media enclosed and attached to plumbing systems for the purpose of treating, mixing, or dispensing a liquid. Although the invention may well be used solely for any dispensing system, it is more often used in combination of a dispensing system and a means to remove odors, tastes, chemicals, sediments, bacteria and all other unpleasant qualities often found in so called potable tap water.

3,757,815
PRESSURE RELIEF VALVE
James D. Orr, 6330 E. Surrey, Birmingham, Mich.
Filed Feb. 10, 1972, Ser. No. 225,140
Int. Cl. F16k *17/04*
U.S. Cl. 137—475 **8 Claims**

A pressure relief valve has a single piece outer body or housing with an inlet and an outlet formed therein commu-

nicating with a chamber formed internally of the housing; a moveable valving member situated within the chamber is generally contained within a removable valve guide and is resiliently urged toward a closed position against the inlet by a



spring also contained within the valve guide; and a manually actuated lever is operatively connected to the valving member through a valve stem member which is connected to the valving member in a manner providing for a lost motion connection therebetween.

3,757,816

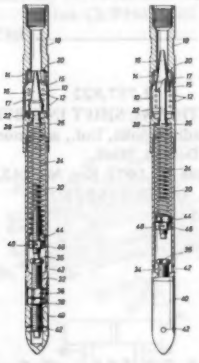
DOWNHOLE SAFETY VALVE

Frederick Price, 307½ Boles St., Houston, Tex.

Filed Sept. 7, 1972, Ser. No. 287,101

Int. Cl. F21b *33/00*; F16k *31/2*

U.S. Cl. 137—498 **18 Claims**



An abrasion resistant flow control safety valve has a variably adjustable orifice or port for passage of a desired flow of a well fluid. The annular orifice is defined by a tapered plug extending through a seat, and the cross-sectional area of the orifice is varied by moving the plug relative to the seat. The valve operates responsive to a predetermined flow rate to close and shut in the well.

3,757,817

TANDEM CONTROL VALVE

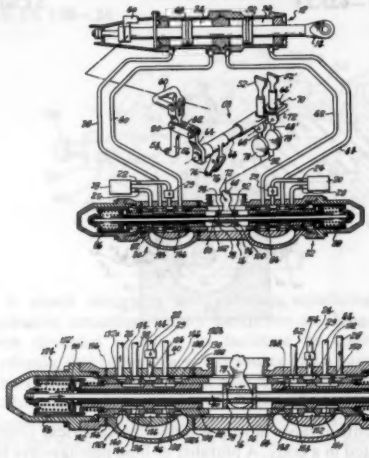
Mildred S. Wheeler, Long Beach, and Robert D. Rothi, Rolling Hills, both of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Division of Ser. No. 148,612, June 1, 1971, Pat. No. 3,726,186. This application Aug. 23, 1972, Ser. No. 282,926

Int. Cl. F16k *11/00*

U.S. Cl. 137—596 **3 Claims**

A control valve for a hydraulic actuated assembly which includes two valve slides which are resiliently connected in tandem to a control input. If one of the slides jams, the other slide



can be moved to cause hydraulic lock of the hydraulic actuator.

3,757,818

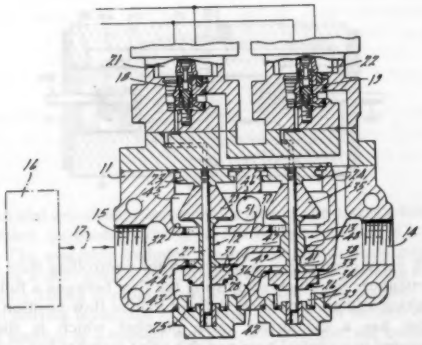
SAFETY CONTROL VALVE SYSTEM FOR FLUID ACTUATED DEVICES

Roger L. Sweet, Royal Oak, Mich., assignor to Ross Operating Valve Company, Detroit, Mich.

Filed July 26, 1971, Ser. No. 165,967

Int. Cl. F16k *11/10*

U.S. Cl. 137—596.16 **3 Claims**



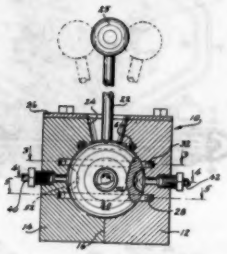
Two normally closed three-way main valves are connected in series to supply fluid to an outlet port. When moved to their closed positions, the valves provide parallel connections from the outlet port to exhaust. Therefore, if either valve is stuck in an open or partially open position, movement of the other valve to its closed position will provide good exhausting capacity. Furthermore, there will be no substantial pressure at the outlet port until both valves are actuated to their open position. Movement of either valve to its exhaust position will completely stop the supply of air to the outlet port and provide a direct exhaust connection.

3,757,819

OMNI-DIRECTIONAL FLUID-CONTROL VALVE

Allen Richard Andis, 3209 Elwood Dr., Racine, Wis.

Filed Feb. 8, 1972, Ser. No. 224,570
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.23 5 Claims



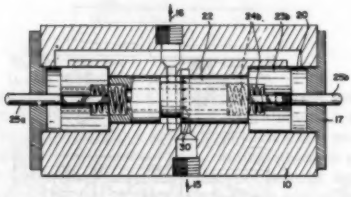
A fluid-control valve having a nutatable spherical control member seated in a body. A plurality of fluid passageways surround the spherical member and are in fluid connection therewith. The control member has peripheral ports that selectively direct the fluid in the passageways through conduits, when the control member is nutated, to operate hydraulic equipment.

3,757,820

HYDRAULIC CONTROL VALVE

Albert O. Aylesworth, 3050 Alexander Blvd., Windsor, 10 Ontario, Canada

Filed Feb. 29, 1972, Ser. No. 230,355
Int. Cl. F16k *3/24*, *3/32*
U.S. Cl. 137—625.3 2 Claims



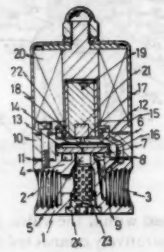
A valve mechanism is described for controlling fluid flow, particularly for quickly adjusting the flow between a full flow position and an accurately defined limited flow position. The valve has a cylindrical valve member which is slidably mounted in a central bore and this valve member has a region of reduced diameter with an annular wall extending between the region of reduced diameter and the cylindrical surface of the valve member. One of these annular walls forms a sharp corner with the cylindrical surface and a series of notches are provided in this sharp corner. A pair of flow connected annular recesses are provided in the bore holding the valve member so that at full flow, the region of reduced diameter is over both annular recesses while for restricted flow fluid connection between the annular recesses is via the notches. A third position is also possible where the valve member completely closes the connection between the annular recesses thus preventing any flow.

3,757,821

DISK TYPE ELECTROMAGNETIC VALVE

Katsuji Fujiwara, 191 Mishitani, Hiraoka-cho, Kakogawa, Hyogo-ken, Japan

Filed Dec. 22, 1971, Ser. No. 210,707
Claims priority, application Japan, Jan. 13, 1971, 46/675 (utility model); Mar. 11, 1971, 46/13299 (utility model); June 22, 1971, 46/54537 (utility model)
Int. Cl. F16k *31/40*
U.S. Cl. 137—625.48 7 Claims



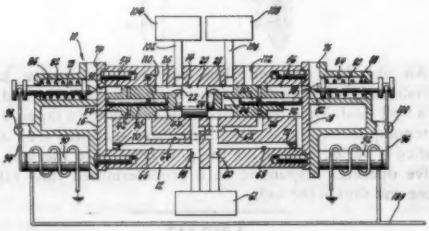
A disk type electromagnetic valve comprising a disk valve floatingly arranged within a pressure chamber which is formed by a main body and a cover member, the opening and closing of the disk valve are hydrodynamically effected, and the pressure exerted from behind said disk valve for closing it is controlled by opening and closing a pilot valve under the influence of a small-type solenoid.

3,757,822

DIRECTIONAL SHIFT INHIBITOR

Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed June 15, 1972, Ser. No. 262,958
Int. Cl. F16d *25/10*
U.S. Cl. 137—625.61 8 Claims

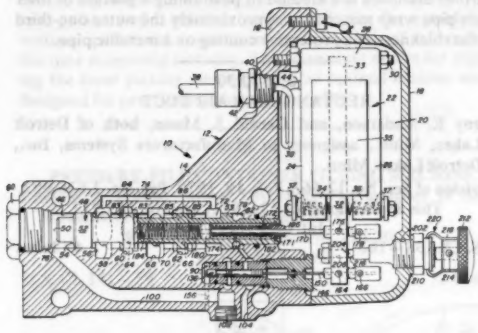


The directional shift inhibitor illustrated includes a valve mechanism which cooperates with a governor-actuated solenoid arrangement to alternately control the flow of fluid to forward and reverse clutches at predetermined low speeds regardless of the speed at which the operator shifts from forward-to-reverse or reverse-to-forward operation.

3,757,823
VALVE

Dale A. Knutson, Oconomowoc, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed Nov. 2, 1971, Ser. No. 194,840
Int. Cl. F16k 11/07
U.S. Cl. 137—625.64 6 Claims

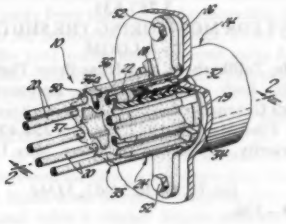


A two stage servo operated valve comprising an open-center main valve and a pilot valve wherein separate hydraulic circuits are maintained for each of said valves.

3,757,824
VACUUM TUBE AND CONNECTOR ASSEMBLY

Robert H. Parkhurst; William R. Beck, and Edward M. Bungo, all of Warren, Ohio, assignors to General Motors Corporaion, Detroit, Mich.

Filed May 15, 1972, Ser. No. 253,206
Int. Cl. F16l 39/02
U.S. Cl. 137—798 3 Claims

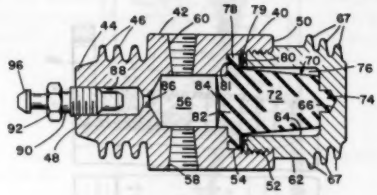


This disclosure relates to a tube and connector assembly for use in a control system including a valve with multiple male outlets and which comprises a plurality of tubes for connecting different ones of the male outlets of the valve with other parts of the control system and female connectors on the ends of the tubes which are adapted to mate with and communicate the male outlets of the valve with the tubes. The tube and connector assembly further comprises a connector housing which has a plurality of tapered openings therethrough for receiving the female terminals to align the same with the male outlets of the valve. The connector housing has slots co-extensive with the openings to enable the tubes to be received within the openings. The female terminals are thereafter received within the tapered openings by pulling on the tubes to frictionally and sealingly engage the connector housing whereby the female connectors are aligned with the male outlets of the valve and can be simultaneously connected thereto.

3,757,825
PRESSURE EQUALIZING DEVICE FOR FLUID PRESSURE SYSTEMS

Reuben H. Givens, 61 Canal St., Apt. 20, San Rafael, Calif., and Theodore P. Spero, 362 Via Casitas, Greenbrae, Calif.

Filed July 21, 1971, Ser. No. 164,733
Int. Cl. F16l 55/04
U.S. Cl. 138—26 4 Claims

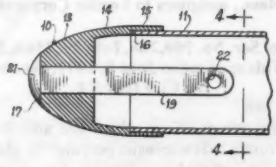


A shock absorbing and pressure equalizing device for hydraulic actuating systems comprises an elongated housing with threaded openings to facilitate its connection to a hydraulic line between a power source and a pair of actuators. The openings communicate with a fluid receiving chamber within the housing, one side of which is the end face of a shock absorbing, resiliently yieldable member that extends axially into but does not fill a cavity formed by one end of the housing. Shock waves of increased pressure within the first chamber produced by an imbalanced reaction from one of the system actuators are absorbed by a crushing action against the end face of the resiliently, yieldable member which can deform temporarily into the housing cavity. A graphite powder coating is provided on the yieldable member to prevent it from sticking to the inner walls of the cavity.

3,757,826
END CAPS FOR GYM

Glenn H. Kroll, Chicago, Ill., assignor to Sears Roebuck and Co., Chicago, Ill.

Filed May 1, 1972, Ser. No. 248,935
Int. Cl. F16l 57/00
U.S. Cl. 138—89 5 Claims

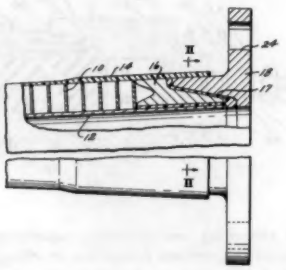


An end cap closure assembly for closing the end of a tubular member, particularly the cross bar hanger member of a gym set. The assembly includes a generally hollow body portion having a skirt portion extending therefrom and defining an interiorly facing annular shoulder with the body portion. The skirt portion is adapted to surround the exterior surface of the end portion of a tubular member, for example, the cross bar hanger, with the end thereof abutting the shoulder. The body portion is formed with an opening in the end thereof opposite the skirt portion with the opening communicating with the interior of the skirt portion. An elongated strap member is insertable into the opening formed in the body portion and extends axially beyond the skirt portion. The strap member includes a head portion adapted to close the opening in the body portion and has an aperture formed in the portion of the strap member extending beyond the skirt portion which is adapted to receive fastening means inserted therethrough to secure the assembly to the tubular member.

3,757,827
LIGHTWEIGHT DUCT AND METHOD OF MAKING SAME

David L. Seiwert, West Chester, and Thomas L. Hampton, Loveland, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Jan. 29, 1969, Ser. No. 794,952
Int. Cl. F16l 9/14
U.S. Cl. 138—109 4 Claims



A lightweight composite duct having inner and outer shells with a cellular core therebetween is provided with a mounting ring. The mounting ring is bonded to a split, wedge ring which, in turn, is bonded to the thin-walled inner shell of the duct. In fabrication, the inner shell is telescoped over a mandrel. The mounting ring is telescoped over the inner shell and defines a V-shaped groove. A strip of adhesive material is wrapped about the split, wedge ring, and the wedge ring is then forced into the V-shaped groove. A woven mesh material in the adhesive strip provides accurate spacing between the split, wedge ring and the shell and between the split, wedge ring and the mounting ring as the split, wedge ring flexes radially to provide essentially uniform adhesive thickness regardless of tolerance variations in the mounting ring and the inner shell. Thereafter, a honeycomb core is bonded to the inner shell, and an outer shell is bonded to the core and the mounting ring.

3,757,828
AIR-IMPERMEABLE SURFACES COATED WITH AN ADHESIVE COMPOSITION

Elliott Frauenglass, Newington, Conn., and William E. Cass, Wayland, Mass., assignors to Loctite Corporation, Newington, Conn.

Division of Ser. No. 709,228, Feb. 29, 1968, Pat. No. 3,625,875. This application June 8, 1971, Ser. No. 150,938
Int. Cl. F16l 9/14
U.S. Cl. 138—145 11 Claims

Sheet coating compositions which are adhesive in nature can be made from a thermoplastic polymer by plasticizing the polymer with an anaerobic adhesive, i.e., a mixture of a polymerizable liquid acrylate ester monomer and a peroxy polymerization initiator therefor. Such compositions are used effectively as preapplied coatings for air-impermeable surfaces in sealing and bonding applications.

3,757,829
COMPOSITE PIPE WRAP MATERIAL AND METHOD

George William Berry, Far Hills, N.J.; Milton Wesley Gregory, New Canaan, Conn., and John Louis Ambrose, South Bound Brook, N.J., assignors to Johns-Manville Corporation, New York, N.Y.

Filed May 12, 1971, Ser. No. 142,781
Int. Cl. B32b 1/10; F16l 9/14
U.S. Cl. 138—146 18 Claims

A composite pipe wrap material for underground pipe including a fiber glass pipe wrap material bonded to an outer protective pipe wrap material by a layer of adhesive which partially penetrates into the fiber glass wrap. The fiber glass wrap is preferably in the form of a mat. The composite pipe wrap material is adapted to position a portion of the fiber glass mat in approximately the outer one-third of the thickness of a metallic pipe protective coating when the material is wrapped about a metal pipe. Also disclosed is a method or protecting a metallic pipe by forming the composite pipe wrap material, coating the pipe with a protective coating and wrapping the pipe to position a portion of the fiber glass wrap in approximately the outer one-third of the thickness of the coating. Further disclosed is a method of positioning a portion of fiber glass pipe wrap material in approximately the outer one-third of the thickness of a protective coating on a metallic pipe.

3,757,830
RECTANGULAR AIR DUCT

Leroy E. Anderson, and Gerald J. Munn, both of Detroit Lakes, Minn., assignors to Manufacturers Systems, Inc., Detroit Lakes, Minn.

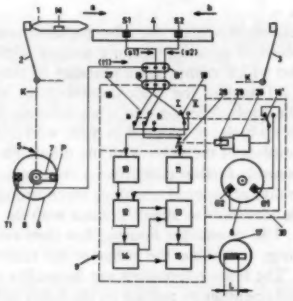
Division of Ser. No. 12,663, Feb. 19, 1970, Pat. No. 3,636,903. This application July 19, 1971, Ser. No. 163,917
Int. Cl. F16l 9/16
U.S. Cl. 138—163 4 Claims

A machine designed to continuously progress a pair of elongated flat sheets of metal longitudinally through a plurality of cooperative dies which progressively in sequential steps gradually shape the two sheets into a duct having a rectangular cross-sectional configuration. The machine utilizes cooperative rotary dies to shape and form the duct in a continuous operation to a length equal to that of the sheets so that rectangular ducts of any desired length can be produced in an automatic operation by merely inserting into the machine a preprepared roll comprised of a pair of sheets of metal of the desired length, the sheets entering the machine at one end and leaving the same at the other end in the form of a continuous rectangular duct.

3,757,831
EQUIPMENT FOR MONITORING THE SHUTTLE FLIGHT IN A LOOM

Erich Loepfe, Zollikerberg, and Hans Peter Theiler, Wettswill Am Albis, both of Switzerland, assignors to Aktiengesellschaft Gebrueder Loepfe, Zurich, Switzerland

Filed May 18, 1972, Ser. No. 254,471
Claims priority, application Germany, May 18, 1971, P 21 24 573.8
Int. Cl. D03d 51/02, 51/44
U.S. Cl. 139—336 10 Claims



An equipment for monitoring the shuttle flight in a conventional loom provided with a shuttle, particularly for measuring

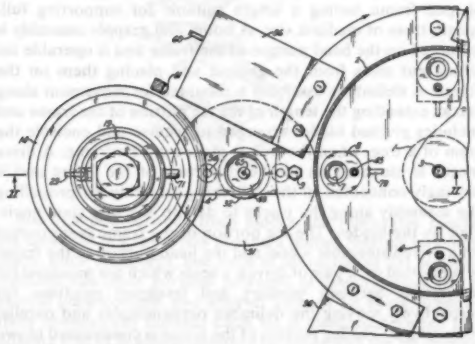
and indicating the regularity of such shuttle flight comprising: at least one pair of control coils mounted along the shuttle race and a permanent magnet mounted in the shuttle for generating a control pulse every time the permanent magnet passes over a control coil; a second permanent magnet coupled to the drive means of the loom and tracing a cyclic path per shuttle passage, and at least one further coil arranged near said path for generating a cycle pulse every time the second permanent magnet passes by the further coil; circuitry for measuring time intervals elapsing between two successive of said pulses; and a selector switching device for establishing various operational connections from any pair of said coils to the time measuring circuitry. The equipment allows for adjusting the loom picking mechanism in an optimal manner and is designed for practical use in weaving mills.

3,757,832

PRESSURE-FILL CONTAINER FILLING MACHINE

Chester E. Waxlax, Moon Township, Pa., assignor to Horix Manufacturing Company, Pittsburgh, Pa.

Filed Feb. 3, 1971, Ser. No. 112,207
Int. Cl. B67c *3/00*
U.S. Cl. 141—59 **12 Claims**



Spaced around a supply tank is a plurality of dispensing chambers, each of which is mounted on a conduit arm extending laterally away from the tank and connecting the bottom of the tank with the bottom of the chamber. There is a first valve for closing the tank outlet and a second valve for closing an outlet from the conduit arm to a downwardly extending filling tube. A suction tube extends along the filling tube and has an inlet at its lower end located above the lower end of the filling tube. The suction tube is connected with the inside of the tank, which is maintained under subatmospheric pressure. Means are provided for filling each dispensing chamber in succession with liquid from the tank while the first valve is open and the second valve is closed. Means also are provided for causing each dispensing chamber to force liquid down through the associated filling tube into a container that has been raised around the outlet of the tube. Liquid product that rises in the container above the lower end of the suction tube therein returns through that tube directly to the supply tank.

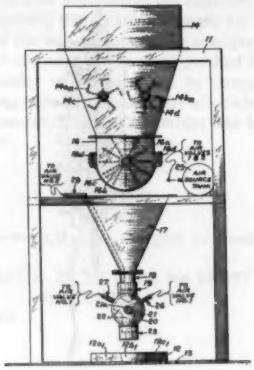
3,757,833

DEPOSITING APPARATUS

William H. Dugger, and Wayne K. Alexander, both of Kansas City, Mo., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Aug. 31, 1971, Ser. No. 176,459
Int. Cl. A21c *9/04*; **B65b** *37/14*
U.S. Cl. 141—186 **10 Claims**

The depositing apparatus described provides an arrangement wherein a hopper is positioned to direct a flow of material into a multiple number of individual streams. A rotating drum having a series of Y-shaped bores revolvable about an axis is positioned for individually communicating with a stream of said material in a first position, and successively depositing the material accumulated in each of said bores in another position. The arrangement includes means for con-



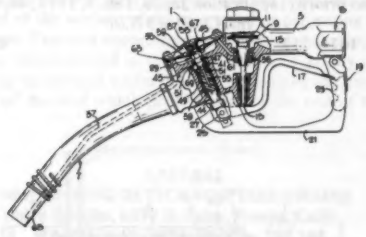
trolling the movement of said drum and for insuring the measured amounts of the material are deposited after each filling of the bores in said drum with said material.

3,757,834

FLUID DISPENSING NOZZLE AND LATCHPIN THEREFOR

Mervin L. Carder, P.O. Box 3725, 509 N. Geyer Rd., Kirkwood, Mo.

Filed Nov. 11, 1971, Ser. No. 197,730
Int. Cl. B65b *57/06*
U.S. Cl. 141—225 **14 Claims**



A fluid dispensing nozzle for dispensing gasoline wherein a high-level shut-off means includes a pressure-sensitive diaphragm, a latch pin carried by the diaphragm, a tapered camming surface on the latch pin, and means releasably engaging the camming surface for establishing a pivot point for a valve-controlling lever. The tapered portion is formed as a rotatable sleeve on the latch pin.

3,757,835

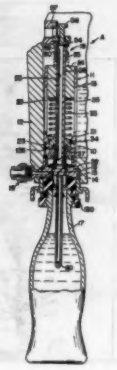
BEVERAGE FLOW DISTRIBUTOR MEANS FOR BOTTLE FILLING DEVICES

Bruce G. Copping, Akron, Ohio, assignor to Automatic Sprinkler Corporation of America, Willoughby, Ohio

Continuation-in-part of Ser. No. 767,396, Oct. 14, 1968, abandoned. This application May 6, 1969, Ser. No. 822,132
Int. Cl. B67c *3/06*
U.S. Cl. 141—286 **8 Claims**

The bottle filler device is provided for use in machines having a member forming a valve seat in a filling head and where the valve means are vertically positioned for reciprocation to and from engagement with the valve seat. A beverage flow distributor means is carried by the valve means and positioned

therebelow, which distributor means includes a plurality of circumferentially spaced blades positioned in the beverage flow path for setting up a swirling tubular flow on the beverage as it moves towards a bottle to fill the same.

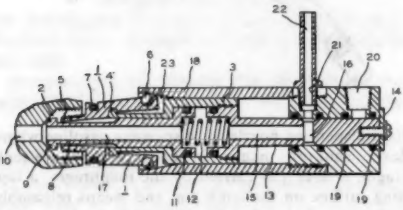


3,757,836

QUICK-CONNECT VALVE FOR USE IN FILLING GAS CYLINDERS

Eiji Masuda, Takarazuka, Hyogo-Prefecture, Japan, assignor to Daido Kogyo Kaisha, Ltd., Nishi-ku, Osaka, Japan

Filed Nov. 1, 1971, Ser. No. 194,160
Claims priority, application Japan, Feb. 3, 1971, 46/4346
Int. Cl. F16l *37/28*
U.S. Cl. 141—312 **4 Claims**



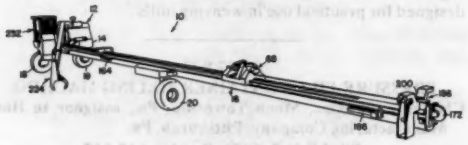
The valve comprises a tubular stem adapted to engage the central portion of a threaded socket inlet in a gas cylinder. A longitudinally sectioned sleeve surrounds the stem and has a threaded end that fits the threaded socket when expanded. A sleeve support slidably surrounds the stem and has a ferrule on which the sections of the sleeve are pivoted, and a resilient annular member surrounds the sectioned sleeve adjacent to the threaded end thereof, for pivoting the sections of the sleeve on the ferrule to contract the threaded end of the sleeve around the stem. A collar is axially slidable on the sleeve support and has a flared end for engaging the sections of the sleeve to pivot them in opposition to the resilient annular member in order to expand the threaded end of the sleeve into engagement with the threads of the socket.

3,757,837

SELF-PROPELLED TREE DELIMBER

John Lischer French, Moline, Ill.; Kenneth Quentin Kessler, Dubuque, Iowa; Walter W. Funk, Fresno, Calif.; Victor Charles Pierrott, III, and Stanley Hiseler, both of Dubuque, Iowa, assingors to Deere & Company, Moline, Ill.
Hiseler, 285 Grandview Ave., both of Dubuque, Iowa

Division of Ser. No. 120,501, March 3, 1971. This application July 27, 1972, Ser. No. 275,719
Int. Cl. A01g *23/00*
U.S. Cl. 144—2 Z **11 Claims**



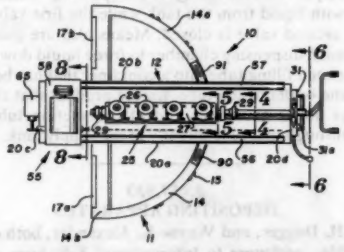
A self-propelled tree delimber includes a horizontal T-shaped frame having a length suitable for supporting full-length trees of medium size. A boom and grapple assembly is mounted on the head portion of the frame and is operable for lifting cut trees from the ground and placing them on the frame. A delimbing assembly is mounted for movement along tracks extending the length of the leg portion of the frame and includes pivoted blades arranged to receive and encircle the stem of a tree, when the tree is placed on the frame. A drive motor is mounted on the head portion of the frame and is drivingly connected to the delimbing assembly for propelling the assembly along the tracks to delimb any tree stem encircled by the blades. The leg portion of the frame is supported on a driven steerable wheel and the head portion of the frame is supported on a pair of driven wheels which are mounted for movement between working and transport positions for respectively moving the delimber perpendicular and parallel to its length. The leg portion of the frame is constructed in two sections which are disconnectible for shortening the length of the delimber for transport.

3,757,838

CUTOFF AND ROUTING DEVICE

Andrew Lee, Minneapolis, Minn., assignor to Hypaco, Incorporated, Minneapolis, Minn.

Filed May 17, 1972, Ser. No. 254,032
Int. Cl. B27c *9/04*; B27m *3/18*; B27b *5/20*
U.S. Cl. 144—3 R **13 Claims**



A precision cutoff and routing device including a support frame having locating and positioning elements thereon, with a cutting unit mounted for movement thereon which cutting unit includes material clamping members, a traversing cutting element and a plurality of routing devices which routing devices are arranged for controlled movement within a predetermined path for precisely routing a connector receiving recess in the bottom of the material being cut which recess

may be formed on either side of the path of the traversing cutting element. Control means are provided to prevent movement of the routing devices through the path of the cutting element while the cutting element is moving.

3,757,839

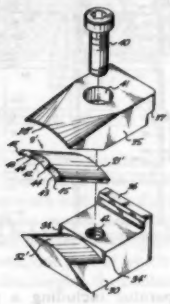
CHIPPER BIT AND HOLDER

Stanley Donald Vanek, Seattle, Wash., assignor to Nicholson Manufacturing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 883,038, Dec. 8, 1969, Pat. No. 3,661,192. This application May 10, 1971, Ser. No. 141,595

Int. Cl. B26c *1/00*

U.S. Cl. 144—172 6 Claims



Bits clamped between fixed blocks and removable blocks are arranged in a spiral row around a hollow rotating chipping drum. Each bit is bent, one form of bit including flat sections defining side plate portions arranged at dihedral angles to a central plate portion, and another form of bit being substantially cylindrically curved. Each bit is clamped between bit-holding blocks engaging opposite bit faces with the bit-cutting edge projecting beyond the periphery of the chipping drum. The cutting edges of the flat section bit are straight, and cutting edges of the curved bit are concave with adjacent cutting edges meeting in a cusp.

3,757,840

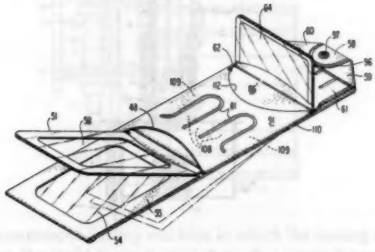
BILLFOLDER AND METHOD OF MAKING

Henry M. Herbener, 803 N. Davison St., Thomasville, Ga.

Filed Mar. 3, 1972, Ser. No. 231,655

Int. Cl. B65d *1/06*

U.S. Cl. 150—35 13 Claims



A billfolder is constructed from a single pair of blanks formed of woven fabric coated on opposite sides with heat sealable plastic. The various layers or panels of the billfolder are held in assembled relationship by an absolute minimum number of heat seals or "welds," thus minimizing the tendency of the heat sealing operations to stretch and deform the material. Because of a small number of heat seals, a number of the billfolder panels may slide or float relative to one another during usage to preclude wrinkling and to enable the billfolder to adjust to the variable thickness of the contents. The parts of the billfolder requiring the greatest strength are formed with multiple layers of the material and all wear edges and exterior edges are folded and rounded as distinguished from raw cut edges. The billfolder is characterized by compactness with maximum carrying capacity for a variety of articles. It is highly economical in construction and resembles fine leather in appearance and feel.

3,757,841

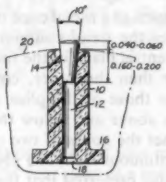
TIRE STUD

Rolf J. Cantz, Grove City, Pa., assignor to Kennametal, Inc., Latrobe, Pa.

Filed Oct. 29, 1970, Ser. No. 85,097

Int. Cl. B60c *11/16*

U.S. Cl. 152—210 8 Claims



A tire stud having a body with a hard wear resistant pin mounted an axial bore in the body thereof and protruding from one end of the body. The body has a head on the other end and is mounted in the tread of a tire head end foremost with the end of the stud from which the pin protrudes about at the level of the surface of the tire tread or projecting slightly therefrom. The stud according to the present invention is particularly characterized in that the pin moves axially into the stud body as the stud wears thereby controlling the amount of the pin of the stud which protrudes from the end of the stud body.

3,757,842

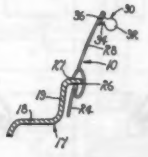
MOUNTING DEVICE FOR TIRE CHAINS

Delbert Elden Sandlin, 6375 N. Palm, Fresno, Calif.

Filed Oct. 12, 1971, Ser. No. 188,108

Int. Cl. B60c *27/00*

U.S. Cl. 152—216 4 Claims



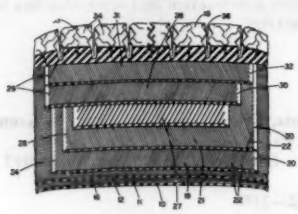
A mounting device, for a tire chain of a type having opposite ends including a plurality of individually selectable fastener links extended therefrom. The device is characterized by a pair of protuberances oppositely extended from the plane of the tire and to which is attached a pair of said links, whereby rotation of the tire serves to draw the chain about the tire in an encircling fashion.

3,757,843

BELTED PNEUMATIC TIRE

Robert L. Carr, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Apr. 23, 1971, Ser. No. 136,896
Int. Cl. B60c 9/20
U.S. Cl. 152—361 DM 10 Claims



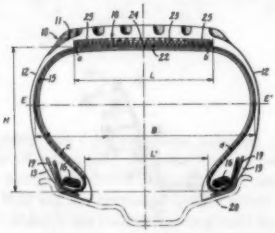
A pneumatic tire such as a radial cord tire has a constricting peripheral belt under the tread containing plies of cords at small angles to the central plane of the tire, with a central ply, preferably narrower than the other, containing cords of a higher modulus than those of the plies above and below it. Preferably, the plies above and below the central ply of the belt are folded so that the cords of two adjacent plies at opposite angles are continuous from one ply through the fold to the other ply. It is also preferred that the outermost belt ply have the cords at an angular direction opposite to the high modulus belt ply. The belt construction is also useful on a tire having the carcass cords extending at bias angles.

3,757,844

HIGH-SPEED RADIAL TIRE

Henri Verdier, Beauregard-L'Eveque, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France

Filed Dec. 13, 1971, Ser. No. 207,323
Claims priority, application France, Dec. 30, 1970, 7047651
Int. Cl. B60c 9/18
U.S. Cl. 152—361 FP 5 Claims



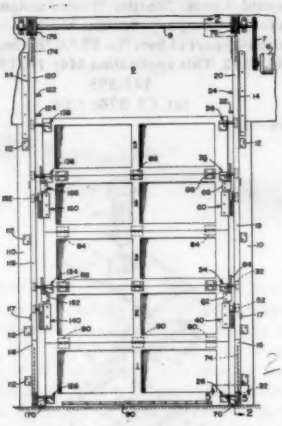
The carcass reinforcement of a radial tire having a substantially cylindrical tread reinforcement meets the tread reinforcement tangentially at points of the tread reinforcement near or at the edges thereof, and the carcass and tread reinforcements are substantially in contact with each other over a width at least equal to the minimum width of the carcass reinforcement at the height of the bead wires. This permits continuous high-speed travel without danger of ply separation.

3,757,845

OVERHEAD STACKED FOLDING DOOR

James M. Pagliaro, Harrisburg, Pa., assignor to Compact Closures, Inc., Middletown, Pa.

Filed Sept. 28, 1971, Ser. No. 184,479
Int. Cl. E05f 11/54
U.S. Cl. 160—189 14 Claims



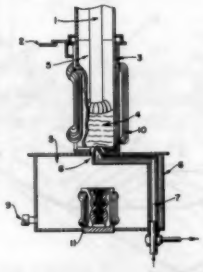
Folding door apparatus including a plurality of panels hinged together in accordian fashion are raised and lowered along parallel spaced guide channels by a winding drum and cable; one end of the cable is secured to the winding drum while the other end is fastened to the remotest panel from such drum. In a door open position, the panels are folded and located above the door opening with the panel located closest to the winding drum being stored in an unfolded condition.

3,757,846

METHOD AND APPARATUS FOR EFFECTING ELECTROMAGNETIC DISPLACEMENT OF FLUIDS

Harry H. Herman, Jr., 4201 Cathedral Ave., N.W., Washington, D.C.

Continuation-in-part of Ser. No. 710,108, March 4, 1968, which is a division of Ser. No. 776,885, Nov. 28, 1958. This application Apr. 12, 1971, Ser. No. 133,102
Int. Cl. B22d 27/02
U.S. Cl. 164—51 8 Claims



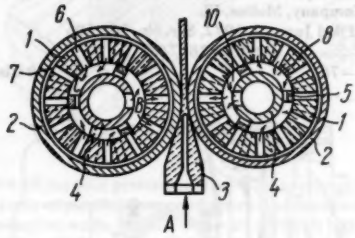
This invention related to effecting the movement of liquids by electromagnetic means. Liquids, as used herein, should be understood to include fluids, generally such as gases, vapors, and plasma. By the proper adjustments of temperature and pressure, materials may be handled as liquids, vapors, or plasma. Fluidized solids are also contemplated within the scope of the term liquid, as are magnetic fluids.

3,757,847

ROLL MOULD WITH COOLING SYSTEM

Pavel Ilich Sofinsky, Lukhovitskaya ulitsa, 3, kv. 54, and Ivan Filippovich Tsedyakov, 2 Pyatigorsky proezd, 2, kv. 6, both of Moscow, U.S.S.R.

Filed Oct. 7, 1971, Ser. No. 187,307
Int. Cl. B22d 11/06
U.S. Cl. 164—277 3 Claims



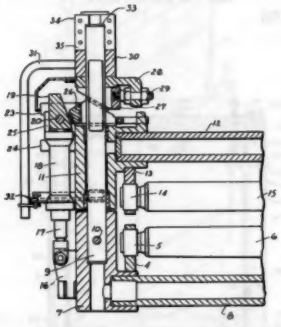
A roll mould which consists of rolls each having the form of a shaft incorporated in a sleeve with the molten metal passing into the clearance between said rolls. Each roll is fitted with a central bore and radial passages. Inside of the central bore in either roll there is the header dividing all the radial passages into individual sections, one part of which serves for supplying and the other — for discharging the coolant.

3,757,848

METHOD AND APPARATUS TO RELIEVE THE STRAIN ON ROLLER APRON SEGMENTS DURING CONTINUOUS CASTING

Heinrich Scholz, Grevenbroich; Georg Bollig, Buederich; Horst Grothe, Kaarst, and Gerhard Otto, Duesseldorf, all of Germany, assignors to Schloemann Aktiengesellschaft, Duesseldorf, Germany

Filed Dec. 16, 1971, Ser. No. 208,828
Claims priority, application Germany, Dec. 19, 1970, P 20 62 792.3
Int. Cl. B22d 11/12
U.S. Cl. 164—282 13 Claims



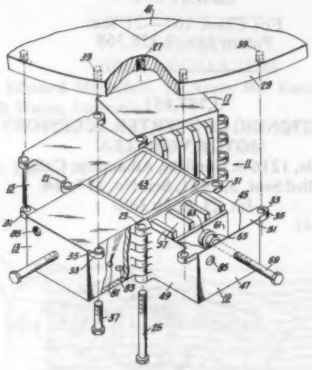
In a continuous casting machine in which the casting emerging from the mold is conducted through a secondary cooling zone by a guide apron having spaced apron segment parts between which the casting moves, means are provided for relieving overload stresses which may be applied to said spaced apron segment parts by said casting in the event of interruption of the casting process. Hydraulic pressure is applied to said spaced apron segment parts to hold them in spaced relation, and means are provided to maintain the spaced relation even in the event of failure of the hydraulic pressure.

3,757,849

STRAND COOLING SUPPORT SYSTEM

John W. Toperzer, and Dale K. Beachy, both of Pittsburgh, Pa., assignors to Koppers Company, Inc., Pittsburgh, Pa.

Filed Apr. 28, 1972, Ser. No. 248,399
Int. Cl. B22d 11/12
U.S. Cl. 164—282 10 Claims



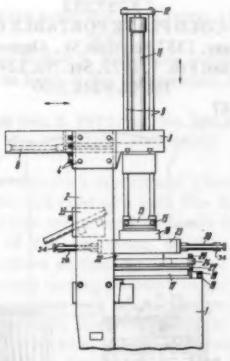
The invention comprises a set of four interconnected housing units which face the four sides of a rectangular continuous cast strand. Enclosed within each housing unit is a set of guide plates which may be moved toward the cast strand surface, but not in direct contact therewith. The plates contact and restrain the surface of the strand whenever it tends to bulge and break out due to excessive internal metallostatic pressure.

3,757,850

LOW-PRESSURE CASTING APPARATUS

Adolf Diez, Neckarsulm, and Josef Heim, Oedheim, both of Germany, assignors to Karl Schmidt GmbH, Neckarsulm, Germany

Filed Jan. 19, 1972, Ser. No. 218,887
Claims priority, application Germany, Jan. 22, 1971, P 21 02 884.2
Int. Cl. B22d 17/06
U.S. Cl. 164—309 13 Claims



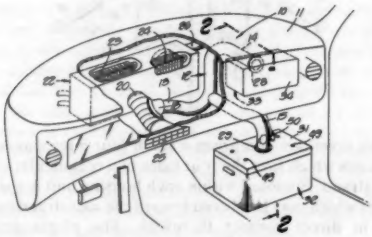
Low-pressure casting apparatus includes a holding furnace for molten metal which is sealed and supplied with gas under pressure. A riser pipe is immersed in the molten metal and communicates with the base plate of an ingot mold positioned on top of the holding furnace. Two opposed flat, upright members are positioned to the rear of the sidewalls of the holding

furnace and a horizontal bridge member is mounted between the upright flat members. The bridge member has a forwardly opening U-shaped slot in which a tension element is horizontally slidably mounted. The tension element contains guide means for tension rods which are attached to the core cover plate, which is part of the ingot mold.

ERRATUM

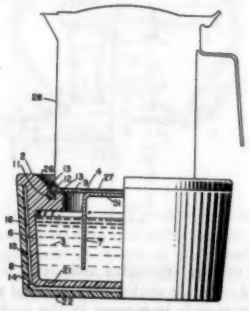
For Class 165—21 see:
Patent No. 3,758,368

3,757,851
AIR CONDITIONING CONVERTER ACCESSORY FOR MOTOR VEHICLES
Orlin G. Marble, 1216 S. Garfield, Alhambra, Calif.
Filed Sept. 3, 1971, Ser. No. 177,566
Int. Cl. B60h *3/00*
U.S. Cl. 165—41 **5 Claims**



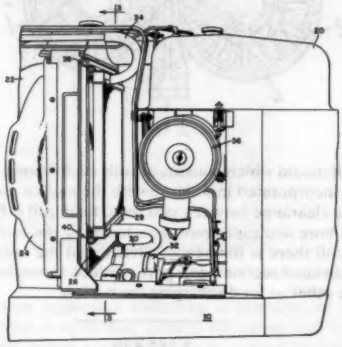
A converter accessory adapted to be readily installed between a vehicle air conditioner and one or more storage compartments for foods and beverages and operable at the option of a motorist to heat and to cool the contents of the compartment at the user's option. The accessory includes flexible hose and couplings by which the novice can connect the hose between the air distributor duct, the glove compartment and an insulated storage chest. Foodstuffs in the chest can be isolated from the air distributor while the accessory is in temporary use to warm a nursing bottle, or the like, using hot air supplied from the heater portion of the conditioner following which cooling can be resumed.

3,757,852
MINI-COLD PLATE PORTABLE COOLER
Arlen W. Allinger, 1337 Fountain St., Alameda, Calif.
Filed Feb. 7, 1972, Ser. No. 224,168
Int. Cl. F24h *3/00*
U.S. Cl. 165—47 **10 Claims**



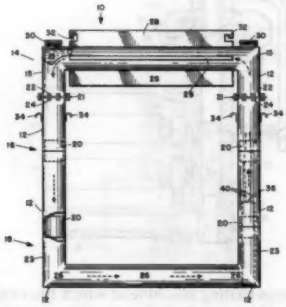
A thermal energy transfer device consisting of a closed container, a coolant hermetically sealed within said container, the container having a small portion which is relatively highly thermally conductive and a second substantially larger portion which has a relatively low thermal conductivity; and a thermally conductive member thermally connected to the small portion extending into the coolant.

3,757,853
HEAT-EXCHANGER FOR POWER PLANTS, ESPECIALLY MOTOR VEHICLES
Leonard Salisbury Daman, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.
Filed June 12, 1972, Ser. No. 261,696
Int. Cl. F28f *7/00*
U.S. Cl. 165—76 **10 Claims**



In a motor vehicle, for example, having the usual coolant radiator, a second heat exchanger is mounted ahead of the radiator and carried thereby for sliding removal and replacement.

3,757,854
HORIZONTAL BOTTOM-FREEZING APPARATUS
Thomas L. Culbertson, Ventura, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 24, 1971, Ser. No. 156,409
Int. Cl. F28d *15/00*
U.S. Cl. 165—106 **3 Claims**



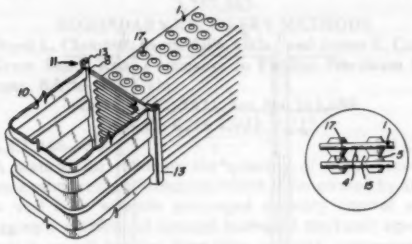
A horizontal bottom-freezing cell which operates on the liquid convection principle wherein loop circulation occurs because of temperature differentials between the upper and lower portion of the cell. The apparatus contains three interconnected members so that the lower member may be left in the ice strata for reinforcement purposes. Also by being interconnected the cell length may be varied as desired.

3,757,855

PRIMARY SURFACE HEAT EXCHANGER

Leslie C. Kun, and James B. Wulf, both of Williamsville, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 15, 1971, Ser. No. 189,509
Int. Cl. F28f 3/02
U.S. Cl. 165—166 6 Claims



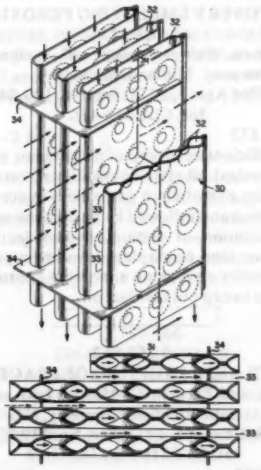
An all purpose primary-surface heat exchanger, comprising an array of parallel channels formed and bounded by thin heat conductive walls, at least one wall of which has on at least a portion of its surface substantially uniformly disposed unidirectional truncated conical wall-supporting projections formed from the wall. The projections are arranged so as to mate with and to abut supportingly against corresponding wall-supporting projections of a similar adjacent wall. The walls, so arranged, are sealed at the wall edges in a manner to form and isolate alternate enclosed channels from intervening open channels so that the alternate channels may contain and conduct a first fluid, and the intervening channels may contain and conduct a second fluid at a different temperature, thereby effecting heat exchange between the fluids.

3,757,856

PRIMARY SURFACE HEAT EXCHANGER AND MANUFACTURE THEREOF

Leslie C. Kun, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Oct. 15, 1971, Ser. No. 189,659
Int. Cl. F28f 3/02
U.S. Cl. 165—166 6 Claims



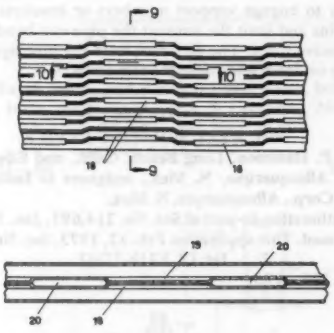
An all purpose primary surface heat exchanger, and manufacture thereof, comprising an array of parallel channels formed and bounded by thin heat conductive walls, at least one wall of which has on at least a portion of its surface isostress contours with substantially uniform disposed unidirectional wall-supporting projections formed from the wall. The projections are arranged so as to mate with, and to abut supportingly against, correspond wall-supporting projections of a similar adjacent isostress wall. The walls, so arranged, are sealed at the wall edges in a manner to form and isolate alternate enclosed channels from intervening open channels so that the alternate channels may contain and conduct a first fluid, and the intervening channels may contain and conduct a second fluid at a different temperature, thereby effecting heat exchange between the fluids.

3,757,857

HEAT EXCHANGERS

Albert Edward Merryfull, 17 Ayres Rd. East, St. Ives, New South Wales, Australia

Filed Mar. 23, 1971, Ser. No. 127,229
Int. Cl. F28b 3/00
U.S. Cl. 165—170 2 Claims



A heat exchange element having a hollow body through which a first fluid may flow for heat exchange with a second fluid outside the element. The element is made of two sheets, at least one of which is corrugated with the plates being welded along their points of contact to form a series of internal flow passages.

3,757,858

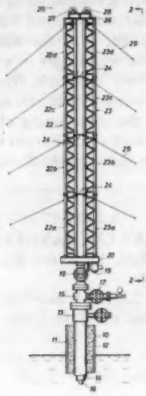
APPARATUS FOR MOVING PIPE INTO AND OUT OF A WELL

Haggai Davis, and Robert S. Robertson, both of Morgan City, La., assignors to Snub-R-Rig Corporation, St. Mary Parish, La.

Filed Dec. 8, 1971, Ser. No. 206,019
Int. Cl. E21b 33/03, 15/00
U.S. Cl. 166—77 10 Claims

The apparatus includes a derrick and a base for supporting the derrick on the well head of a well. The derrick comprises two symmetrical legs that extend upwardly from the base on opposite sides of the centerline of the well head and equidistant therefrom so that the weight of the derrick imposes no unbalanced turning moment on the well head. Each leg supports a sprocket and sheave that move a chain and cable assembly vertically along the side of the leg adjacent the centerline of the well head. Elevators are attached to each chain for movement by the chains along the centerline of the well head to move pipe into and out of the well below the well head. The force imposed on the elevators is equally divided between the chains and the two legs of the derrick so that no unbalanced turning movements are imposed on the well head.

When the fluid in the well is imposing an upward compressive force on the pipe greater than the weight of the pipe, members are spaced along the pipe above the well head that extend



laterally to engage support members or brackets carried by the chains and limit the amount the pipe can bend due to the compressive force. The elevators hold the pipe against movement up or down relative to the elevators.

3,757,859

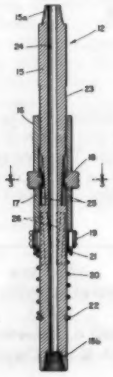
OIL WELL SCRAPING DEVICE

Donald P. Hammon, Long Beach, Calif., and Edwin J. Hammon, Albuquerque, N. Mex., assignors to Industrial Concepts Corp., Albuquerque, N. Mex.

Continuation-in-part of Ser. No. 214,697, Jan. 3, 1972, abandoned. This application Feb. 12, 1973, Ser. No. 331,381

Int. Cl. E21b *37/02*

U.S. Cl. 166—173 **11 Claims**



An oil well scraping device includes an integral central mandrel with tapered grooves about its periphery slidably holding scrapers which extend radially beyond the periphery of the central mandrel. An adjustable collar is threaded to the mandrel and serves as a stop for the upper ends of the scrapers so that by adjustment of the axial position of the adjustable collar, the position of the scrapers in the tapered grooves is adjusted to a positive setting which in turn determines their minimum radial extent. This radial extent defines an internal diameter of clearing of a borehole of scale and the like. The scrapers are individually spring loaded to extend beyond the positive setting by the adjustable collar so that continuous engagement of the scrapers with the borehole side walls will take place. Two sets of grooves and scrapers are provided separated by a spacing collar and staggered circumferentially relative to each other to assure three hundred sixty degree scraping action on the borehole side walls.

3,757,860

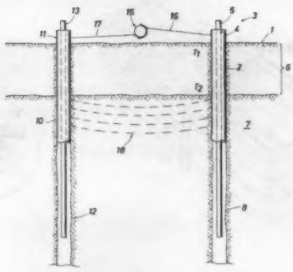
WELL HEATING

William C. Pritchett, Plano, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,267

Int. Cl. E21b *43/24*

U.S. Cl. 166—248 **22 Claims**



A method for heating a well to thaw out a frozen portion of the well or to protect permafrost surrounding the well from thermal cycling due to variations in production rate from the well. Also, a method for improving the pumpability of fluid which is produced from a well which does or does not pass through a permafrost zone. Further, a method for preventing the formation of hydrates in a gas well which is in or out of permafrost. In this invention, an alternating current is applied to at least one pipe in the well and maintained at a desired voltage level, the frequency of the alternating current is varied and controlled to cause a skin effect and to increase the effective electrical impedance of said pipe, and an electrical return is established from beneath the portion of the well to be heated, e.g., from beneath a permafrost zone. By this method the pipe is uniformly heated on its outer surface throughout the portion of the well to be heated to a temperature which prevents hydrate formation, or reduces the viscosity of liquid produced through the wellbore, or causes thawing of ice, or prevents freezing of water present to eliminate alternate freezing and thawing of the permafrost and sloughing of permafrost due to such thermal cycling.

3,757,861

OIL RECOVERY EMPLOYING PEROXIDES AND ALKALIS

Willis G. Routson, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Apr. 1, 1971, Ser. No. 130,541

Int. Cl. E21b *43/16*

U.S. Cl. 166—273 **11 Claims**

For more efficient recovery of petroleum, particularly for recovery of residual oil after conventional water flooding, an aqueous solution of hydrogen peroxide is injected into the oil-bearing formation and followed by an alkaline solution such as an aqueous solution of sodium hydroxide. The resulting treated slug may then be displaced toward a production well or wells, preferably employing a mobility control agent in the driving fluid, to sweep out residual oil.

3,757,862

MULTILAYER PROPPING OF FRACTURES

Loyd R. Kern, and Ferman G. Martin, both of Irving, Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,879

Int. Cl. E21b *33/138*, *43/26*

U.S. Cl. 166—280 **20 Claims**

A method for increasing the permeability of a formation whereby alternate layers of substantially insoluble particles (propping agent) and essentially soluble particles are emplaced in a fracture in said formation. At least one of the

layers of substantially insoluble particles is treated with a stabilizing resin which can be hardened or otherwise set up to physically stabilize that layer to resist movement of the insoluble particles back toward the wellbore during the production of fluid through the fracture and into the wellbore.

3,757,863

SECONDARY RECOVERY METHODS

Richard L. Clampitt, Bartlesville, Okla., and James E. Curzon, Great Bend, Kans., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 27, 1971, Ser. No. 212,688
Int. Cl. E21b *43/22, 43/27*
U.S. Cl. 166—307 **9 Claims**

A method for reducing the quantity of water recovered from a subterranean formation which is penetrated by at least one well bore wherein prolonged mobility control and/or plugging is maintained through increased thickener agent adsorption on oil bearing formation surfaces; comprising the steps of treating the formation with an acid, a neutralizing brine, and at least one slug of thickened aqueous solutions.

3,757,864

FRICTION REDUCING AND GELLING AGENT FOR ORGANIC LIQUIDS

David Lee Crawford; Robert Brooks Earl, both of Tulsa, Okla., and Roger F. Monroe, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 16,591, March 4, 1970, abandoned. This application May 12, 1971, Ser. No. 142,783
Int. Cl. E21b *43/26*
U.S. Cl. 166—308 **16 Claims**

The pressure drop of a confined non-polar organic liquid in motion due to friction is markedly lessened by admixing with the liquid an effective amount of one or more aluminum salts of an aliphatic orthophosphate ester. By increasing the concentration of the aluminum salts of the aliphatic orthophosphate ester so that a gelling quantity is present, the organic liquid can be gelled to provide for example a fracturing fluid for oil and gas wells wherein hard particulate material may be suspended to serve as proppants in the resulting fractures.

3,757,865

REMOVAL OF GASES FROM CONTAINERS

Michael John Clements, "Rosedeme," Orient Drive, Woolton, Liverpool, Lancashire, England

Filed Apr. 28, 1971, Ser. No. 138,322
Int. Cl. A62c *1/12*
U.S. Cl. 169—2 R **1 Claim**

Disclosed is a method of removing explosive or inflammable gases from a container which comprises continuously pumping into container containing liquid and highly explosive or highly inflammable gases, or such gases alone, a high expansion fire-fighting foam, and, when the available space within the container is full with such foam, continuously removing it at a rate corresponding to the inlet rate.

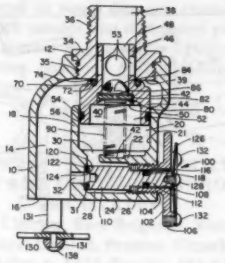
3,757,866

ON-OFF SPRINKLER

James William Mears, and William James O'Brien, both of Providence, R.I., assignors to Grinnell Corporation, Providence, R.I.

Filed Nov. 8, 1971, Ser. No. 196,641
Int. Cl. A62c *37/08*
U.S. Cl. 169—37 **2 Claims**

An improved sprinkler for a fire protection sprinkler system in which the sprinkler opens to discharge water at one temperature and closes to stop the flow of water at a lower temperature. A pilot valve is actuated by a bimetal disc which also resiliently biases the pilot valve in a closed position. The bimetal disc has a snap action resulting in better control of the



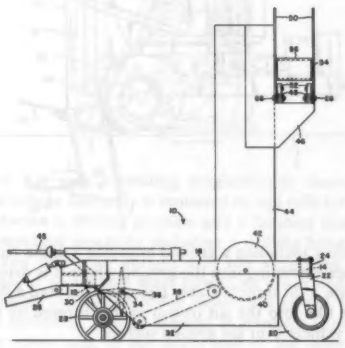
"on" and "off" temperatures of the sprinkler. A thermal delay for closing is obtained by the hysteresis which is designed into the bimetal disc.

3,757,867

ROOT CROP HARVESTER

Richard Wayne Hook, and Richard David Zaun, both of Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Feb. 28, 1972, Ser. No. 229,669
Int. Cl. A01d *17/02*
U.S. Cl. 171—58 **10 Claims**



A root crop harvester includes a main frame, a plurality of digger wheels on the front of the main frame, conveyor means supported on the main frame to receive roots from the digger wheels and deliver the same to a transversely extending auger conveyor which moves the roots to a vertical auger conveyor. An additional conveyor mounted on the upper end of the vertical auger conveyor in root-receiving relationship therewith moves the roots laterally upwardly for deposit in a vehicle moving alongside the harvester. The additional conveyor is mounted for lateral movement on the upper end of the vertical auger conveyor so that it can be moved inwardly to a transport position.

3,757,868

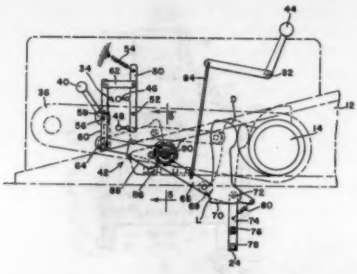
TRACTOR-IMPLEMENT HITCH CONTROL

Stanley Martin Gregerson, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed June 12, 1972, Ser. No. 261,697
Int. Cl. A01b *63/112*
U.S. Cl. 172—9 **10 Claims**

A hitch control of the type wherein the working depth of the implement depends upon the draft between the tractor and

implement, with provision for draft-sensing in both "positive" and "negative" phases and featuring means for locking out



negative sensing when the implement is in its raised or transport position.

3,757,869

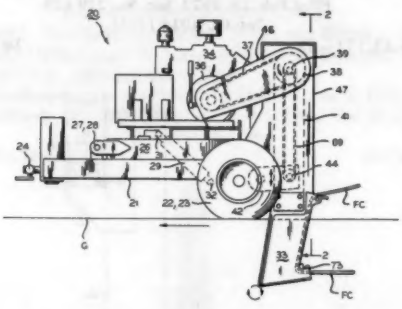
SLIT TRENCHING MACHINE WITH ORBITAL MOTION PLOW

Archie R. Gagne, R.R. 1, Box 146A, St. Charles, Ill.

Division of Ser. No. 17,261, March 6, 1970, Pat. No. 3,647,003. This application Jan. 14, 1972, Ser. No. 217,752

Int. Cl. F16l *1/00*; E02f *5/02*

U.S. Cl. 172—40 **2 Claims**



A cable plow including a ground engaging vehicle having a plow member extending into the ground where it is driven orbitally to form a slit trench. Cable laying means feed a flexible cable or the like into the slit trench as it is formed by movement of the vehicle over the ground surface.

3,757,870

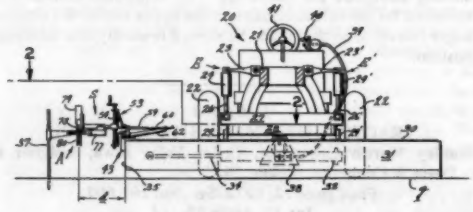
BLADE POSITION CONTROL APPARATUS

Raymond E. Gill, Peoria, Ill., assignor to Westinghouse Air Brake Company, Peoria, Ill.

Filed Aug. 30, 1971, Ser. No. 175,885

Int. Cl. E02f *3/76*

U.S. Cl. 172—4.5 **12 Claims**



An automatic blade position control apparatus mounted on the cutting blade of a surface finishing vehicles for maintaining the end edge thereof at a predetermined distance from a reference string and also at a predetermined height relative to the ground; said apparatus having a vertically disposed feeler arm and a horizontally presented feeler arm, both being engageable with said reference string and having a switch control arm coupled thereto for opening and closing a switch responsive to the movement of the respective feeler arms. The cutting blade is horizontally and vertically moved by hydraulic rams, of the double acting type, which rams are in circuit with the related switch and are operated responsive to the movement of said feeler arms. A parallelogram linkage assembly connects the apparatus to the vehicle for assuring proper blade endwise disposition relative to the reference string regardless of the blade angle with respect to the transverse axis of the vehicle.

3,757,871

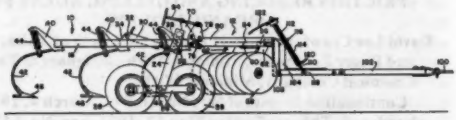
MINIMUM TILLAGE AGRICULTURAL IMPLEMENT

John Edward Maust, Jr., Des Moines; Darrel Lee Honnold, Winterset, Iowa, and William Wayne Jackson, Des Moines, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jan. 26, 1972, Ser. No. 220,797

Int. Cl. A01b *35/28*, *63/00*

U.S. Cl. 172—178 **4 Claims**



A combination disk harrow and chisel plow for effectively working the soil while leaving sufficient residue on the surface to prevent soil erosion and water run-off. The implement includes an adjustment for varying the effective working depth of the disk gangs with respect to the working depth of the chisel plows.

3,757,872

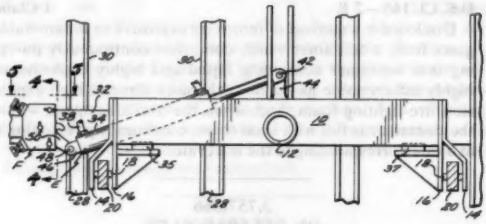
TWO-WAY PLOW ACTUATOR LOST MOTION MECHANISM

William F. Mellen, Anaheim, Calif., assignor to Alice Marian Mellen, Anaheim, Calif.

Continuation-in-part of Ser. No. 159,116, July 2, 1971. This application Nov. 15, 1972, Ser. No. 306,734

Int. Cl. A01b *3/28*

U.S. Cl. 172—225 **6 Claims**



A two-way plow that includes a plow assembly that may be pivoted to either a first or second operating position by a longitudinally expandable and contractable hydraulic actuator in conjunction with a lost motion mechanism. The plow includes a frame on which first and second laterally spaced rests are provided, which rests when contacted support the plow assembly slightly below the first and second operating positions.

The lost motion mechanism includes a first portion pivotally supported from the actuator and a second portion that occu-

pies a fixed position relative to the plow assembly. The second portion includes first and second longitudinally adjustable stops.

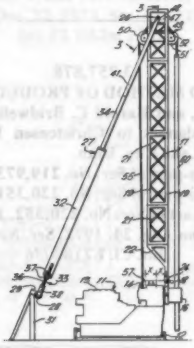
The first and second portions are so operatively associated that the lost motion mechanism serves two functions. First, as the actuator is contracted the plow assembly will be pivoted from one operating position towards the other, and the center of weight of the plow assembly moves through dead center prior to the actuator being fully contracted. The weight of the plow assembly causes the latter to pivot by gravity towards the operating position to which it is moving after the center of weight of plow assembly has passed dead center. The rate at which the plow assembly is allowed to so pivot is determined by the rate at which the actuator is allowed to expand. The second function served by the lost motion mechanism, and that occurs when the actuator is fully extended and the first portion is in contact with one of said stops, is to support the plow assembly in either the first or second operating position without the assembly being in contact with either of said rests. Upward shock arising from movement of the plow assembly through the ground is accordingly transferred to hydraulic fluid in the actuator rather than to the plow frame, and damage to the latter is minimized.

3,757,873

ADJUSTABLE MAST FOR DRILLING ON HOISTING WITH RIGID STAY

Keith Charles Bice, Greenborough, Victoria, Australia, assignor to Mindrill Limited, Preston, Victoria, Australia

Filed Oct. 6, 1971, Ser. No. 186,974
Claims priority, application Australia, Oct. 6, 1970, 2766
Int. Cl. E21b *15/00*
U.S. Cl. 173—43 **5 Claims**



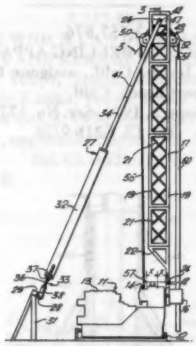
A base has rails extending longitudinally in one direction and a drilling machine assembly is supported on the rails for movement in this direction between a forward drilling position and a retracted hoisting position, the drilling machine assembly including a drilling head to grip and rotate an upright drill rod when in the drilling position. Power means are provided to move the drilling machine between its two positions. An upright mast has its lower end pivotally connected to the drilling machine assembly by a first pivot connection to move back and forth with the assembly, and a rigid stay is pivotally connected at its upper end, by a second pivot connection, to an upper part of the mast and is pivotally connected, at its lower end, by a third pivot connection to an anchorage fixed relative to the base, so that the mast is rotated about the second pivot axis upon movement of the drilling machine assembly between the drilling and hoisting positions. A hoist sheave support is suspended from the mast for swinging about the second pivot connection, and hoist sheaves are mounted on the sheave support. When the drilling machine assembly is in the drilling position, the first pivot connection is spaced forwardly through a preselected distance from a vertical plane through the second pivot connection and, when the drilling machine assembly is in the hoisting position, the first pivot connection is spaced an equal distance rearwardly from this vertical plane, which assures that the second pivot connection and the sheaves remain in the same location for both the drilling and hoisting positions of the drilling machine assembly.

3,757,874

DRILLING APPARATUS WITH MAST TILTING ABOUT UPPER PIVOT AXIS FIXED AGAINST HORIZONTAL TRANSLATION

Lindsay Graham Claxton, East Brighton, Victoria, Australia, assignor to Mindrill Limited, Preston, Victoria, Australia

Filed Oct. 6, 1971, Ser. No. 186,975
Int. Cl. E21b *15/00*
U.S. Cl. 173—43 **8 Claims**



A base has rails extending longitudinally thereof and a drilling machine assembly is mounted on the rails for displacement between a drilling position and a hoisting position, the drilling machine assembly including a drilling head operable to grip and rotate an upright drill rod supported from the upper end of an upright mast having its lower end pivotally connected to the assembly for movement of the lower end with the assembly. A mast support is pivotally connected, at an upper pivot axis, to the upper end of the mast and to a ground point fixed relative to the base, the mast support restraining the upper end of the mast against horizontal translational movement. Thereby, upon movement of the drilling machine assembly from the drilling position to the hoisting position and toward the fixed ground point, the mast is tilted about its upper pivot axis from a first substantially upright position to a second relatively tilted position. The rails guide the drilling machine assembly to tilt in the same direction as the mast to cause the drilling head to tilt in the same direction as the mast. Fluid pressure actuators displace the drilling machine assembly along the rails, and the rails include relatively inclined portions to effect the tilting of the drilling machine assembly.

3,757,875

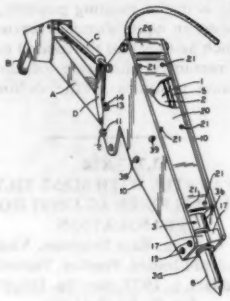
AIR HAMMER AND COMBINED SUPPORT AND MUFFLER THEREFOR

Samuel D. Gunning, Cleveland, Ohio, assignor to Kent Air Tool Co., Kent, Ohio

Filed Nov. 24, 1971, Ser. No. 201,933
Int. Cl. F01n *7/00;* **B25d** *17/12*
U.S. Cl. 173—44 **8 Claims**

A support by which a reciprocating air hammer of the

type having an elongated body or barrel is pivotally supported on the bucket supporting boom arm of a conventional power



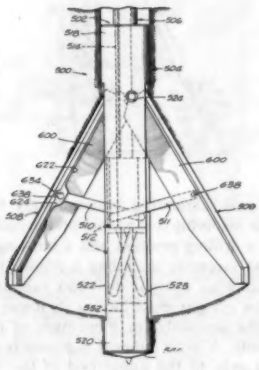
shovel, is modified to enclose the hammer body and to muffle the air percussively discharged from the hammer body.

3,757,876

DRILLING AND BELLING APPARATUS

Robert L. Pereau, Irvine, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Sept. 1, 1971, Ser. No. 177,037
Int. Cl. E21b 9/26
U.S. Cl. 175—267 **9 Claims**



Apparatus for drilling a hole, and for belling out the lower end of the hole into a conical enlargement, in a single pass of the apparatus down the drill hole, which apparatus includes a combined drilling and belling tool.

Both the extension and the retraction of the belling blades are positively driven.

The combined drilling and belling tool is characterized by the fact that the drilling blades are adapted to cut in one direction of rotation, while the belling blades are adapted to cut in the opposite direction of rotation.

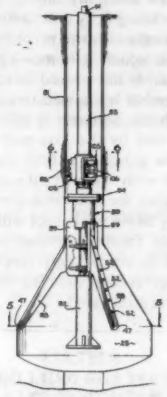
3,757,877

LARGE DIAMETER HOLE OPENER FOR EARTH BORING

Clarence H. Leathers, Redondo Beach, Calif., assignor to Grant Oil Tool Company, Los Angeles, Calif.

Filed Dec. 30, 1971, Ser. No. 213,956
Int. Cl. E21b 9/26
U.S. Cl. 175—269 **2 Claims**

The present invention is an earth boring device and more particularly a device for expanding a portion of a drilled hole to a greater diameter. The device of the present invention includes a body portion adapted to be attached to the end of, or inserted into, a drill string. A plurality of cutter blades are pivotally mounted upon and circumferentially spaced about the body. Fluid circulation means are provided to supply fluid outwardly along the cutting length of each blade. A mandrel is



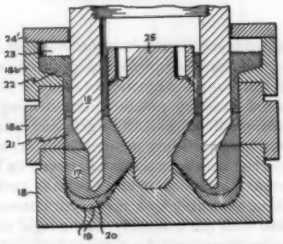
carried within the body in engagement with a lever arm portion of each blade whereby longitudinal movement of the mandrel pivots each blade from a closed to an opened position. In order to center the drill string in the non-expanded portion of the bore hole, a bearing guide means is provided on the drill string proximate to the expanding apparatus.

3,757,878

DRILL BITS AND METHOD OF PRODUCING DRILL BITS

Arthur G. Wilder, and Harold C. Bridwell, both of Salt Lake City, Utah, assignors to Christensen Diamond Products Company, Salt Lake City, Utah

Continuation-in-part of Ser. No. 219,973, Jan. 24, 1972, Continuation-in-part of Ser. No. 220,351, Jan. 24, 1972, Continuation-in-part of Ser. No. 220,352, Jan. 24, 1972. This application Aug. 24, 1972, Ser. No. 283,475
Int. Cl. E21b 9/36
U.S. Cl. 175—329 **24 Claims**

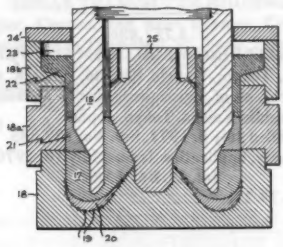


Earth boring drills such as are useful in oil well drilling or other drilling operations and methods of producing such drills in which metal-encapsulated primary abrasive particles such as diamonds and metal-encapsulated secondary particles are bonded together and to a metallic shank by means of a metal matrix.

3,757,879
DRILL BITS AND METHODS OF PRODUCING DRILL BITS

Arthur G. Wilder, and Harold C. Bridwell, both of Salt Lake City, Utah, assignors to Christensen Diamond Products Company, Salt Lake City, Utah

Continuation-in-part of Ser. No. 219,973, Jan. 24, 1972, and a continuation-in-part of Ser. No. 220,351, Jan. 24, 1972, and a continuation-in-part of Ser. No. 220,352, Jan. 24, 1972. This application Aug. 24, 1972, Ser. No. 283,474
Int. Cl. E21b 9/36
U.S. Cl. 175—329 13 Claims

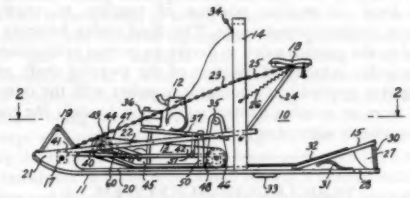


A diamond bit comprising a steel shank coated with abrasive particles, with a ring of tungsten-coated iron particles bonded together in a metal matrix and by metal to the end of the shank.

3,757,880
SELF-PROPELLED SNOW SLED

Claude A. Jones, R.D. 4, Box 140, Nazareth, Pa.

Filed Dec. 22, 1971, Ser. No. 210,674
Int. Cl. B62m 27/02
U.S. Cl. 180—5 R 3 Claims



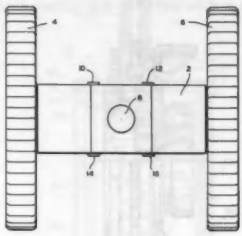
Apparatus for use in traveling over terrain covered by snow and/or ice which comprises a vehicle having a pair of spaced parallel runners and support frame pivotally mounted at the forward end thereof for supporting the motor and tractive means. The rearward portion of said frame is adapted to move freely vertically while being contained laterally.

3,757,881
CRANE CRAWLER TRUCK

Ralph H. Short, and Paul C. Goodwine, both of Lima, Ohio, assignors to Clark Equipment Company, Buchanan, Mich.

Filed Dec. 23, 1971, Ser. No. 211,505
Int. Cl. B62d 55/08
U.S. Cl. 180—9.2 3 Claims

This is a vehicle having detachable self-propelled track laying traction devices which may be detachably mounted on opposite sides or opposite ends of a rectilinear base or chassis of the vehicle. The crawler type traction apparatus is mounted on the sides of the rectilinear chassis to give a narrow tread width to give maximum maneuverability for working within a

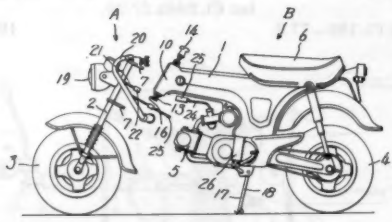


narrow area. The traction apparatus may be mounted on the ends of the chassis to obtain a wide tread width and thereby give maximum stability.

3,757,882
MOTORCYCLE WHICH CAN BE DISASSEMBLED INTO FRONT AND REAR SUBASSEMBLIES

Soichiro Honda, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1970, Ser. No. 77,850
Claims priority, application Japan, Oct. 3, 1969, 44/78635
Int. Cl. B62k 15/00
U.S. Cl. 180—33 R 11 Claims



A motorcycle with rear wheel drive is constructed with a front subassembly having a front fork carrying a front wheel separably connected to a vehicle frame on a rear subassembly. The frame is provided with an arch-shaped support stand at such a position that the center of gravity of the connected subassemblies is forward of the support stand while the center of gravity of the rear subassembly alone is rearward of the support stand.

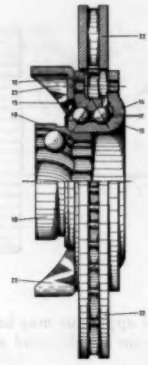
3,757,883
WHEEL SUPPORT FOR AN ENGINE PROPELLED ROAD VEHICLE

Sture Lennart Asberg, Savedalen, Sweden, assignor to SKF Industriele-En Ontwikkeling-Maatschappij N.V., Amsterdam, Netherlands

Filed Feb. 3, 1971, Ser. No. 112,287
Int. Cl. B62d 7/06
U.S. Cl. 180—70 R 6 Claims

A preassembled wheel support unit having inner and outer annular members with confronting raceways for relative rotation and means for connecting one annular member to the vehicle and the other annular member to the wheel and brake disk. The pitch diameter of the raceways is at least twice the overall axial width of the annular members whereby forces

resulting from functioning of the brake are acting at substantially the same diameter and close to forces from the wheel



and reaction forces from the vehicle. A drive coupling member is connected to the inner annular member.

3,757,884

APPARATUS FOR SUPPORTING THE GEAR SHIFT LEVER FOR OPERATING THE TRANSMISSION OF A MOTORCAR

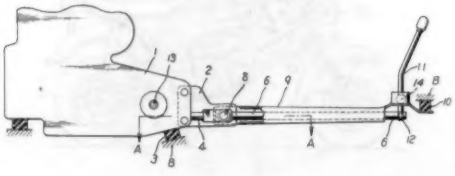
Takao Tomita, Wako, and Masayoshi Uesugi, Sayama, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1971, Ser. No. 213,403

Claims priority, application Japan, Dec. 31, 1970, 45/123273

Int. Cl. B60k *17/00*

U.S. Cl. 180—77 R **10 Claims**



Apparatus for supporting a gear shift lever for operating a transmission in a motorcar wherein a connecting rod is attached to a projecting control rod of the transmission for pivotable movement about a horizontal axis which is coincident with the axis of pivotal movement of a frame connected to the internal combustion engine. The frame supports the gear shift lever in a spherical bearing and the gear shift lever is operatively connected to the connecting rod. The frame is resiliently supported at its rear end by the car body and the engine is mounted on its own resilient supports on the car body.

3,757,885

STEERING SPINDLE FOR MOTOR VEHICLES, ESPECIALLY FOR COMMERCIAL-TYPE VEHICLES

Adolf Steiner, Gerlingen, and Hans Rinnergschwentner, Rotenfels, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

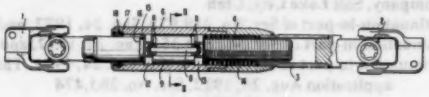
Filed Jan. 20, 1971, Ser. No. 107,937

Claims priority, application Germany, Jan. 21, 1970, P 20 02 471.9

Int. Cl. B62d *1/18*

U.S. Cl. 180—89 A **19 Claims**

A steering spindle for motor vehicles, particularly for trucks equipped with a spring-supported and preferably tiltable driver cab in which a part of the steering spindle is constructed two-partite to provide a linear compensation; this part of the steering spindle consists of a tubular member with a rod



disposed within the same which are connected with each other by a multi-spline connection; roller bodies are arranged between the flanks of the multi-spline connection.

3,757,886

POWER STEERING MECHANISM FOR VEHICLES

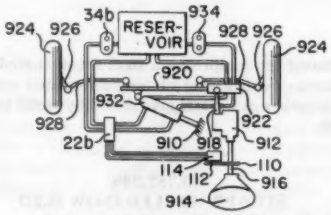
Osamu Hirao, Tokyo; Youichi Kimoto, Nagoya, and Toyoshi Sakano, Aichi, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed July 6, 1971, Ser. No. 159,885

Claims priority, application Japan, July 10, 1970, 45/59838

Int. Cl. B62d *5/06*

U.S. Cl. 180—79.2 R **8 Claims**



A system including a pump and a control valve is added to a conventional power steering mechanism for a vehicle so as to advance the operating phase of the steering mechanism. The pump is driven by the steering shaft and discharges a fixed quantity of hydraulic fluid as the steering shaft is successively rotated from an angular position of rotation to another through a predetermined angle. The fluid under pressure is supplied to the control valve to derive an output proportional to the angular velocity of rotation of the steering shaft, and this output is applied to an actuator together with the output derived from an existing control valve so as to steer the road engaging wheels without any phase lag.

3,757,887

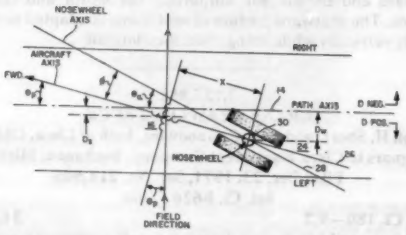
VEHICLE GUIDANCE SYSTEM

Wilcy I. Moore, Folsom, Pa., and Gerard L. Lafond, Cinnaminson, N.J., assignors to Versadyne Inc., Prospect Park, Pa.

Filed July 9, 1971, Ser. No. 161,078

Int. Cl. B60k *27/06*

U.S. Cl. 180—98 **15 Claims**



A system for guiding a vehicle on a surface along a predetermined path defined by at least one wire coupled to an oscilla-

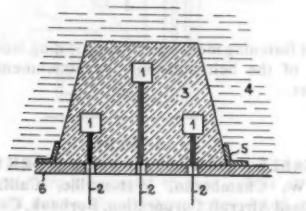
tor for generating an electromagnetic field. A field sensor carried by the vehicle including pick-up coils having mutually orthogonal axes lying in a plane substantially parallel to the plane of the track senses the horizontal components of the field. Signals induced in the pick-up coils are then utilized by a deviation computer in the vehicle to determine the angle and distance of deviation from the track. A steering control which responds to the deviation adjusts the steering mechanism of the vehicle to minimize the deviation.

3,757,888

SONAR TRANSDUCER HOUSING

Michel Lagier, Cannes, and Rene Reynier, Cagnes, both of France, assignors to Thomson-CSF, Paris, France

Filed Nov. 16, 1970, Ser. No. 89,735
Claims priority, application France, Nov. 25, 1969, 6940589
Int. Cl. H04b *13/00*; H04r *1/28*
U.S. Cl. 181—.5 A **4 Claims**



A solid block of material has an outer surface shaped to be streamlined, or otherwise present little flow resistance within a liquid medium; the block has a base, and an inner surface which surrounds the outer surface of transducer elements, the entire volume of the solid block and the material between the outer surface thereof and the inner surface of the transducer elements being homogeneous throughout and of a material which is permeable to sound waves created by the transducer element, the material having a specific gravity similar to that of the liquid medium and propagating sound waves therethrough at a velocity substantially similar to the velocity of propagation of sound waves through the liquid, the transducer being located within the block at a distance which is large with respect to the wave lengths of the waves propagated by the transducer through the block of material. To make this transducer, a mold is provided having a desired exterior outline and then the transducer, or a mold form is inserted therein and elastic material is poured into the mold and permitted to harden to form the housing.

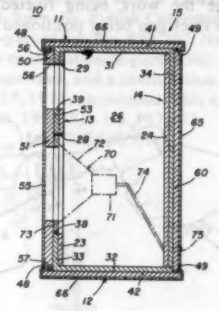
3,757,889

SOUND REPRODUCTION SYSTEM

Scott F. Everitt, Indianapolis, Ind., assignor to Acoustic Fiber Sound Systems, Inc., Indianapolis, Ind.

Filed Jan. 31, 1972, Ser. No. 222,263
Int. Cl. G10k *13/00*; H04r *1/28*
U.S. Cl. 181—31 B **19 Claims**

Three tubular members of corrugated board, each being rectangular in transverse cross-section and including four panels having corrugations extending in directions perpendicular to the longitudinal axis of the tubular member, are nested one within the other with the longitudinal axes thereof being mutually perpendicular to form a closed six-walled housing, each wall comprising back-to-back panels of two different tubular members secured together with the corrugations thereof disposed perpendicular to each other, the outermost tubular member extending outwardly beyond the inner tubular members to form front and rear recesses respectively receiving a baffle board and a rear cover panel therein, and a loudspeaker accommodated in a complementary opening in the front wall and having a mounting flange secured to the inner surface of the baffle board; the rear cover panel and the other walls of the housing are covered with a decorative fac-



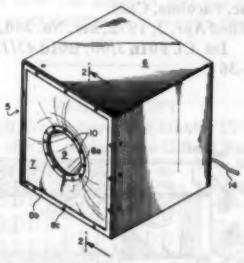
ing, either secured directly to the walls or separated therefrom by a layer of foam or cushioning material. A strip of gasketing material, foamed or otherwise, may also be provided between the baffle board and the front wall of the housing.

3,757,890

ELECTROMAGNETIC SUSPENDED SPEAKER

William S. Dunning, 72-89 Yellowstone Blvd., Forest Hills, N.Y.

Filed Feb. 14, 1972, Ser. No. 225,797
Int. Cl. G10k *13/00*; H04r *1/28*
U.S. Cl. 181—31 B **12 Claims**



In a preferred embodiment, an electromagnetic audio speaker device including an electromagnetic vibrator connected functionally to a speaker cone, the vibrator and cone being suspended within an inner enclosure having a first speaker opening circumscribing a membrane means attached at the first inner opening periphery and attached to an outer periphery of the cone, the inner enclosure being encased within and spaced from an outer enclosure having a second speaker opening aligned with the first speaker opening, the inner and outer enclosures at their opening peripheries being joined to the outer periphery of the membrane means, the membrane means being an elastomer foam encased between two taut polyethylene membranes, the enclosures each being of plastic sheet material laminated to fiber-board sheet material.

3,757,891

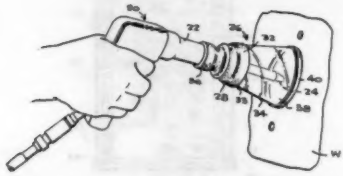
TOOL SILENCING MEANS

A. P. Krieger, 1808-41st Ave., Apt. D, Vero Beach, Fla.

Filed July 28, 1972, Ser. No. 276,105
Int. Cl. E04b *1/99*; G10k *11/04*
U.S. Cl. 181—33 K **15 Claims**

A noise inhibitor for a rivet gun is disclosed comprising a hollow flexible elastic coupling sleeve having one end

stretchably fitted over a portion of the gun casing, a concial transparent body tube is received in the other end of the coupling sleeve and a cushion member in the form of a soft rubber tube is fitted over the opposite end of the conical body tube to engage the work being riveted with the impact member of the rivet gun being positioned in the transparent



body tube so as to be visible by the user; in another embodiment, the conical body tube and rubber sleeve members are oblong conical configuration and are dimensioned to fit over a rivet bucking bar having an impact surface visible through the transparent body tube so that in both embodiments the working surface is visible; however, noise emanating from the working surface components is substantially dissipated.

3,757,892

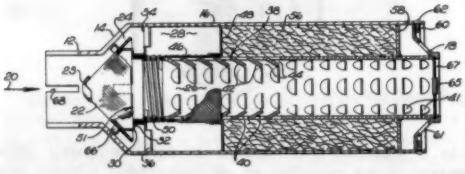
EXHAUST UNIT FOR COMBUSTION ENGINE

Charles J. Raudman, Jr., Newhall, Calif., assignor to Skyway Machine, Inc, Pacoima, Calif.

Filed Apr. 3, 1972, Ser. No. 240,629

Int. Cl. F01n *3/06*; B01d *45/12*

U.S. Cl. 181—36 C **6 Claims**



As disclosed, a modular arrester unit is fixed into a housing and includes a conical screen supported so that the exterior surface receives an exhaust stream, thereby passing a major part of the stream, but deflecting particles into an annular space which also receives a fragment of the stream through a vane structure to create turbulence. A cylindrical screen internally bounds the cylindrical space and passes the stream fragment back to the major stream. The housing additionally supports a silencer or muffler section downstream from the modular arrester unit.

3,757,893

ARTICULATING LEG SLINGS AND BELT

Edwin L. Hobbs, P.O. Box 295, Moraga, Calif.

Continuation-in-part of Ser. No. 88,681, Nov. 12, 1970, abandoned. This application June 26, 1972, Ser. No. 266,339

Int. Cl. A62b *1/14*

U.S. Cl. 182—6 **5 Claims**

A pair of independent leg slings connected to a safety belt and adapted for connection to a safety line by means of a carabiner. The leg slings and safety belt providing combined articulation permitting freedom of movement. The belt having

an offset fastening means permitting sliding movement along a portion of the belt adjacent the attachment point to the carabiner.

3,757,894

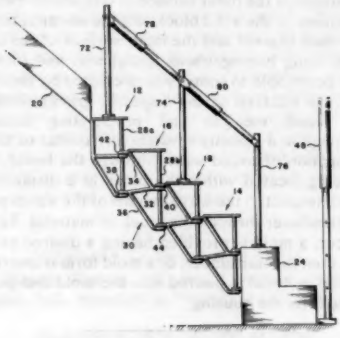
VARIABLE HEIGHT STAIRS FOR WORK PLATFORM

Virgil W. Chamberlin, Watsonville, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed June 5, 0172, Ser. No. 259,907

Int. Cl. E06c *9/08*

U.S. Cl. 182—106 **8 Claims**



A variable height stairway, especially suitable for use with a height adjustable work platform. The stairway comprises step members forming a level base at the lowest position of the work platform and extending upwardly one at a time as the platform is raised in increments equal to the riser dimension of the stairway. The pitch of the stairway remains fixed at each elevated position.

3,757,895

AERIAL LIFT VEHICLE

Dale A. Knutson, Oconomowoc, Wis., assignor to Applied Power Inc., Milwaukee, Wis.

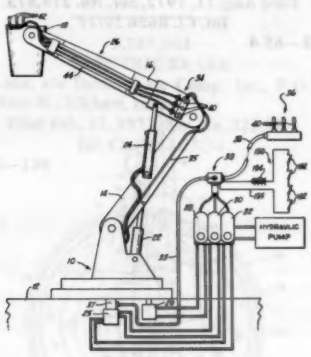
Filed Mar. 10, 1972, Ser. No. 233,422

Int. Cl. B66f *11/04*

U.S. Cl. 182—46 **14 Claims**

An aerial lift vehicle having a carriage rotatably mounted on the vehicle, an electrically insulated boom support on said carriage and an aerial bucket pivotally carried at the upper end of

said boom, a hydraulic system for moving the carriage and the boom, the hydraulic system including a number of electro-hydraulic proportional remote control valves, a set of electric controllers mounted on said boom for operating the valves, manually actuated levers for each of said electric controllers mounted in a fixed position in said bucket, an electrically insulated push-pull assembly in said boom connecting each of said



levers to a corresponding electric controller and a second set of electric controllers connected to said valves at a point remote from said valves, the electrically insulated push-pull assemblies being connected to the mechanical controllers through a set of coaxially arranged rotatable linear motion actuators positioned at the pivot point of the connection of the aerial bucket to the boom.

3,757,896

LADDERS

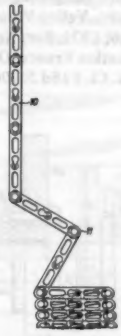
William Waltham Alfred Lee, Bognor Regis, England, assignor to Walthams (Bognor Regis) Limited, London, England

Filed Jan. 26, 1972, Ser. No. 220,830

Claims priority, application Great Britain, Feb. 3, 1971, 3,823/71

Int. Cl. E06c 1/383

U.S. Cl. 182—164 **8 Claims**



This invention relates to a ladder capable of being erected from a plurality of similar rungs and links, the ladder being capable of being folded in a zig-zag manner and also of being dismantled into a kit of component parts. The ladder comprises a plurality of rungs and side links which in the extended form of the ladder are adapted to maintain the spacing of the rungs and means between the rungs and the side links for inter-engagement.

3,757,897

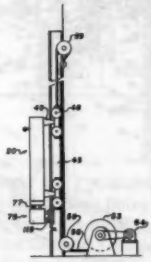
VERTICALLY MOVING TRANSPORTING APPARATUS FOR BUILDINGS

Donald C. Moulson, Burnaby, and James K. McGuigan, North Vancouver, British Columbia, both of Canada, assignors to Sky-Van Limited, Burnaby, British Columbia, Canada

Continuation-in-part of Ser. No. 879,207, Nov. 24, 1969, abandoned, and a continuation-in-part of Ser. No. 879,208, Nov. 24, 1969, abandoned, and a continuation-in-part of Ser. No. 209,469, Dec. 17, 1971, abandoned. This application Apr. 26, 1971, Ser. No. 137,472

Int. Cl. B66b 9/00

U.S. Cl. 187—6 **17 Claims**



There is disclosed apparatus for moving containers up and down on track means secured to buildings. The apparatus includes a lift unit adapted to travel up and down on tracks mounted on a wall of a building. This lift unit has securing means for releasably connecting a container thereto, and power means for selectively operating this securing means to grip and to release the container. The power means is preferably located in an actuator unit which is releasably connected to the lift unit. The actuator unit has means for connecting it to the tracks either permanently or for movement along said tracks.

3,757,898

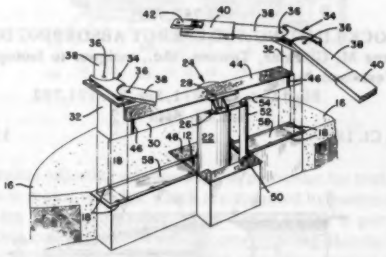
VEHICLE LIFT

Sidney C. Mitchell, Greensboro, and Stanley C. Crandall, Kernersville, both of N.C., assignors to Gilbert Barker Manufacturing Company, New York, N.Y.

Filed Dec. 22, 1971, Ser. No. 210,760

Int. Cl. B66f 7/00

U.S. Cl. 187—8.62 **9 Claims**



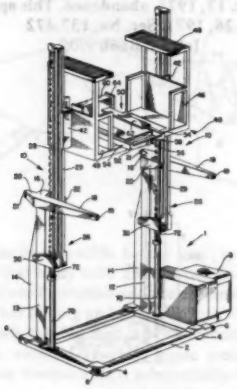
A lift for elevating vehicles above a floor surface includes a trench or box-like enclosure located below the floor surface and closure means for closing the enclosure when the lift is in the raised and lowered positions. A first cover means is normally positioned to close the enclosure when the lift is in the lowered position and is displaced by the lift superstructure when the lift is in the raised position. Second cover means, pivotably mounted within the box-like enclosure, are displaceable to an operative position wherein the enclosure is enclosed, by a series of displaceable arm members and the piston anti-rotation means upon raising of the lift.

3,757,899

DOUBLE MAST SIDE LOADER LIFT TRUCK AND DOUBLE ACTUATOR BALANCING

Raymond L. Smith, Jr., Southbury, Conn., assignor to C&M Manufacturing Company, Inc., Bethesda, Md.

Filed Mar. 12, 1971, Ser. No. 123,792
Int. Cl. B66b *11/04*
U.S. Cl. 187—17 5 Claims



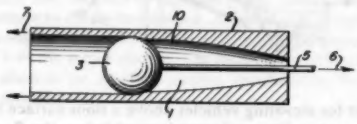
A side loader lift truck has a carriage which moves vertically between fore and aft spaced and unconnected masts. Forks on the carriage move laterally to either side of the masts through the open space between the masts. To prevent carriage tilting and jamming caused by a lift cylinder at one end of the carriage overrunning its opposite counterpart, a supply valve for the overrunning actuator is cut off until the other actuator catches up. The balancing or overrunning prevention is effected by connecting valve bodies to pistons, movable mast portions, or the carriage. Control spools moving within the valve bodies are interconnected by parallel chains and sprockets which move with an interconnecting shaft. The shaft is biased initially in an up or down direction, biasing the valve spools in the up or down position. When the carriage is being raised, excessive upward motion of one valve body carries the body over the spool, cutting off further supply through that valve to the actuator until the synchronizing shaft and chain return the valve spool to its predetermined position.

3,757,900

SHOCK LIMITING AND ENERGY ABSORBING DEVICE

George M. Gischlar, Towson, Md., assignor to Isotopes, Inc., Westwood, N.J.

Filed Oct. 22, 1971, Ser. No. 191,752
Int. Cl. F16f *7/12*
U.S. Cl. 188—1 C 11 Claims



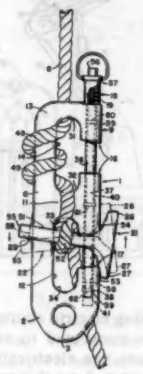
An improved shock limiting and energy absorbing device comprises two components arranged one inside the other. The components are prevented from freely slideably moving with respect to one another by the fact that the external diameter of the inner component is somewhat larger than the internal diameter of the outer component. Application of a force between the inner and outer components results in the inner component being moved through the outer component with the force and energy applied between the two components being absorbed and controlled by the plastic flow of the material tending to prevent the slideable movement.

3,757,901

DOUBLE GATE TORTUOUS GRIP ROPE BRAKE

Edwin L. Hobbs, P.O. Box 295, Moraga, Calif.

Filed Aug. 11, 1972, Ser. No. 279,873
Int. Cl. B65h *59/14*
U.S. Cl. 188—65.4 7 Claims



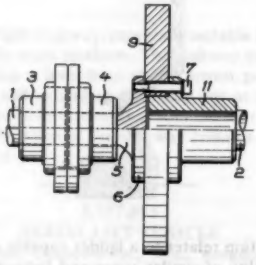
A rope brake for use with an elongated flexible member such as a rope consisting briefly of a frame having a closed opening for non-releasable attachment of carabiners and other safety rings and two separate gated openings for receipt of a line. A brake bar slides upon the frame engaging the line in various degrees of frictional contact and a cam surface on the frame terminating in a shoulder permits holding the brake bar in or out of braking position.

3,757,902

COUPLING FOR ROTATIONAL COUPLING OF TWO SUBSTANTIALLY COAXIAL SHAFTS

Philippe R. Messian, Saint-Cloud, France, assignor to Engrenages Et Reducteurs (Engrenages Citroen et Etablissements R. Messian reunis), Velizy-Villacoublay, France

Filed Oct. 26, 1971, Ser. No. 192,144
Claims priority, application France, Oct. 27, 1970, 7038770
Int. Cl. F16d *55/00*
U.S. Cl. 188—71.1 7 Claims



A disc brake assembly comprising: a movable disc brake member and a coupling for rotational coupling of two substantially coaxial shafts, said coupling comprising a first element connected to one shaft, a connecting member releasably con-

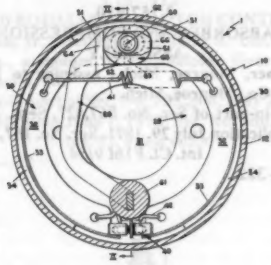
necting the first element to a second element and disposed with radial clearance on at least one of the elements, a spacer member detachably connected to the other shaft and to which the second element is rigidly connected; wherein the disc or calliper of the disc brake member is detachably but rigidly connected to the spacer member, the arrangement being such that the distance between the oppositely directed end surfaces of the second element and spacer member is at the most equal to the distance between the opposed end surfaces of the first element and the other shaft.

3,757,903

ELECTRIC BRAKE

Cletus McLane, c/o Dexter Axle Comp. Inc., P.O. Box 250, 2030 S. Main St., Elkhart, Ind.

Filed Feb. 11, 1972, Ser. No. 225,393
Int. Cl. F16d *65/34*
U.S. Cl. 188—138 **15 Claims**



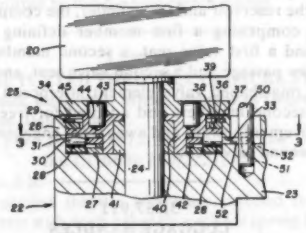
This electromagnetically activated servo brake includes a pair of brake shoes joined at one end by an adjusting screw device and being separated at their opposite ends by an anchor pin. Loosely mounted on the anchor pin, such that it can shift to the left or right thereon, is an actuating lever having an upper and lower cam positioned above and below the anchor pin, respectively. These cams extend between the free ends of the brake shoes. The lever curves out around the central portion of the brake drum and includes an electromagnet mounted on its opposite end.

3,757,904

SPOOL RELEASE MECHANISM

Simon Arden Deyoung, Ravenna, Ohio, assignor to Karg Machine Products, Inc., Tallmadge, Ohio

Filed Oct. 27, 1971, Ser. No. 193,013
Int. Cl. F16d *63/00*
U.S. Cl. 188—82.3 **3 Claims**



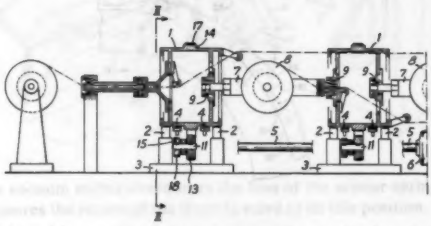
Mechanism for controlling the rotation of a spool of strand material on a strand fabricating machine having a "work center" toward which a tensioned strand from a spool is incrementally released. The spool is carried by a spindle of a spool holder having a base with a case housing the mechanism. The mechanism develops a frictional locking force against rotation of the spool which is selectively released for let off of a strand of material from a spool.

3,757,905

BRAKING ARRANGEMENT FOR A ROTATABLE BODY MOUNTED ON FLUID BEARINGS

Charles M. Fevre, Lyon, France, assignor to Societe Stephanoise de Constructions Mecaniques, Saint-Etienne, France

Filed Apr. 20, 1971, Ser. No. 135,572
Claims priority, application France, Apr. 21, 1970, 7014460
Int. Cl. F16d *65/20*
U.S. Cl. 188—170 **2 Claims**



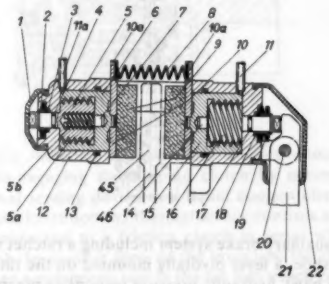
A braking arrangement for a rotatable body mounted on fluid bearings comprising a braking lining shoe or pad whereof the movements relative to a cylindrical part of the body is controlled by a spring or the like and a fluid jack or the like. The spring tends to urge the brake lining against the cylindrical part of the body while the fluid jack tends to move the brake lining away from the cylindrical part of the body. When the fluid bearings are not supplied with fluid the spring urges the brake lining against the cylindrical part of the body.

3,757,906

MECHANICAL ADJUSTING ARRANGEMENT

Karl Baezold, Niederbarnstrasse 13, Frankfurt am Main, Germany

Filed Dec. 21, 1970, Ser. No. 100,209
Int. Cl. F16d *65/56*
U.S. Cl. 188—196 D **13 Claims**



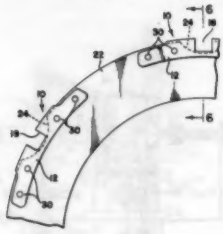
Mechanical adjusting arrangement, in particular for braking members in motor vehicles, which are operated by means of a self-braking or non-reversible outer thread set or a pair of cooperating curved cam elements corresponding thereto for adjusting an abutment, there being a reversible central and coaxial inner thread set or curved pair of elements, one thread of each of the two thread sets being disposed upon the same rotatable spindle, the two thread sets having the same lead and being of the same hand. The outer thread set also serves to support the rotatable spindle; the inner, central thread set is freely mounted and is used to drive the rotatable spindle. In the disclosed embodiment the outer thread set is composed of a thread on a brake-operating piston mounted for axial reciprocation and held from rotation about its longitudinal axis, the other thread of such set being that on the outer surface of the adjusting spindle.

3,757,907

KEY SLOT SEGMENTS FOR DRIVING BRAKE DISCS

Richard L. Crossman; Albert W. Cook, both of Tallmadge, Ohio, and Jesse G. Hawley, Penn Yan, N.Y., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 24, 1971, Ser. No. 146,181
Int. Cl. F16d 65/12
U.S. Cl. 188—218 XL 13 Claims



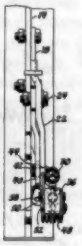
Annular brake discs are provided with metal key slot segments. The metal segments are fastened such as by rivets to the discs and the location of the fasteners are positioned to evenly distribute torque load through the metal segments to the discs. The discs may be either of single piece, multiple piece, or segmented construction. In the segmented construction the metal keyway segments also serve as links connecting the disc segments together. The method for mounting the segments to the discs is also covered.

3,757,908

MECHANICAL LATCH ASSEMBLY FOR BRAKE SYSTEM

Delbert P. Fisher, 17094 Dunblaine, Birmingham, Mich.

Continuation of Ser. No. 884,866, Dec. 15, 1969, abandoned. This application Jan. 19, 1972, Ser. No. 221,466
Int. Cl. F16d 63/00
U.S. Cl. 188—265 13 Claims



An auxiliary brake system including a ratchet mounted on a brake shoe, a lever pivotally mounted on the ratchet and carrying a pawl, hydraulic pressure responsive means for pivoting the lever to an applied position whereby the pawl and ratchet latch. Release is effected by means of a resilient or non-resilient release member which assumes a cocked position relative to the pawl after the lever is applied, thus, to respond to the next stroke to disengage the pawl from the ratchet.

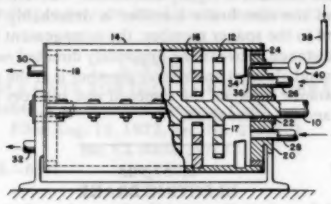
3,757,909

FLUID DYNAMOMETER HAVING A ROTATING STATOR HOUSING

John W. McClure, Charleston, S.C., assignor to Avco Corporation, Charlestown, S.C.

Filed July 23, 1971, Ser. No. 165,623
Int. Cl. F16d 57/02
U.S. Cl. 188—290 2 Claims

A dynamometer such as a water brake is provided with a rotatable housing so that the normal stator disks are rotatable. In one embodiment the housing with the attached stator disks are counterrotated. In another embodiment the stator housing



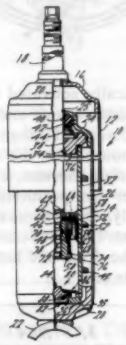
is free to rotate in a forward or a reverse direction or may be maintained stationary.

3,757,910

SHOCK ABSORBER AND COMPRESSION VALVE ASSEMBLY

Dale A. Palmer, Monroe, Mich., assignor to Monroe Auto Equipment Co., Monroe, Mich.

Continuation-in-part of Ser. No. 867,427, Sept. 17, 1968. This application July 29, 1971, Ser. No. 167,135
Int. Cl. F16f 9/34
U.S. Cl. 188—322 6 Claims



In combination in a shock absorber, a pressure cylinder, a piston movable within the cylinder, valve means on the piston for controlling the flow of fluid through the piston between the opposite sides thereof, a fluid reservoir adjacent the cylinder, and a compression valve assembly for communicating fluid between the reservoir and the cylinder, the compression valve assembly comprising a first member defining a first flow passage and a first valve seat, a second member defining a second flow passage and a second valve seat, and at least one generally ring-shaped valve element interposed between the first and second members and adapted for free longitudinal sliding movement toward and away from engagement with the first and second valve seats.

3,757,911

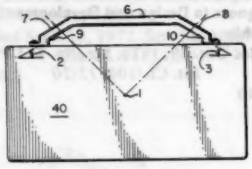
LUGGAGE HANDLES

Huntington Potter, 5234 42nd St. N.W., Washington, D.C.

Filed Dec. 18, 1970, Ser. No. 99,463
Int. Cl. A45c 13/26
U.S. Cl. 190—57 6 Claims

A piece of luggage or like article incorporates a rigid handle having three straight segments. The middle segment is horizontal, i.e., parallel to the top of the piece of luggage, and each of the two end segments are depressed approximately 30° from horizontal so that they make an angle of 150° with the

middle segment. The end segments should be at least 4 inches long so that the user may grip the handle segment. The center



segment will generally be longer than 4 inches. The exact length of the handle will depend on the size and shape of the piece of luggage utilizing this new handle.

3,757,912

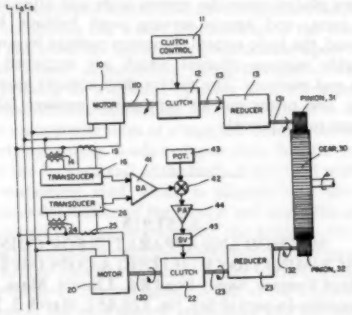
LOAD EQUALIZING CLUTCH CONTROLS

Russell C. Ball, Jr., Malvern, and John K. Liu, Valley Forge, both of Pa., assignors to Philadelphia Gear Corporation, King of Prussia, Pa.

Continuation-in-part of Ser. No. 255,506, May 22, 1972. This application June 7, 1972, Ser. No. 260,365

Int. Cl. F16d *43/00*

U.S. Cl. 192—.02 **20 Claims**



A load-sharing control system controls the division of power among different prime movers driving a common load. In one basic form, the control system utilizes a positive drive in one power path and slipping-clutch means in one or more other power paths. The power delivered to each of the various prime movers is sensed and compared, and used to regulate the torque transmitted by the slipping clutch means.

3,757,913

BRAKE ACTUATED THROTTLE CLOSURE SYSTEM

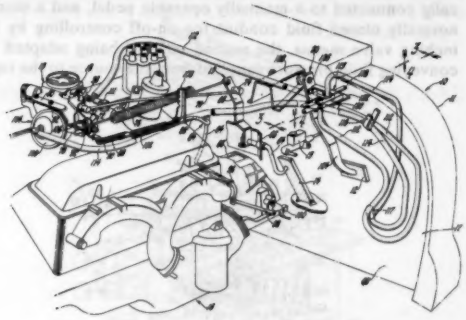
Philip J. Passon, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 8, 1972, Ser. No. 260,774

Int. Cl. B60k *29/02, 21/00*

U.S. Cl. 192—3 R **5 Claims**

First and second throttle levers are coupled to normally move conjointly with each other by a scissor spring biasing the levers in opposite directions on a throttle shaft carrying a carburetor throttle valve. The first throttle lever is fixed to the throttle shaft, and the second throttle lever comprises a part of the vehicle throttle pedal linkage for normally controlling the position of the throttle valve. The first throttle lever is loosely connected to a vacuum motor to permit normal movement of the throttle pedal linkage and is pivoted in a throttle velve closing direction when the vacuum motor is actuated with engine vacuum communicated when a vehicle brake pedal opens a vacuum valve. Should the second throttle lever be prevented from moving in the closing direction with the first, actuation



of the vacuum motor overcomes the bias of the scissor spring and assures the return of the throttle valve to its idle position.

3,757,914

FAN DRIVES

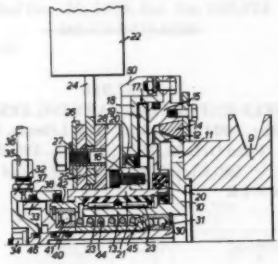
Arthur Ernest Henry Elmer, Painswick, Great Britain, assignor to Dynair Limited, Nailsworth, Great Britain

Filed Nov. 19, 1971, Ser. No. 200,454

Claims priority, application Great Britain, Nov. 21, 1970, 55,490/70

Int. Cl. F16d *47/06*

U.S. Cl. 192—48.3 **5 Claims**



A rotary fan including a fluid filled slipping clutch and means for dis-engaging the slipping clutch by means of a remote thermal sensing device in a liquid coolant circuit. In one form of the invention the thermal sensor controls a pneumatic ram connected to a friction clutch in series with the slipping clutch. In another form of the invention the thermal sensor actuates a pneumatic ram in the fan hub which controls a device for evacuating fluid from the slipping clutch to disconnect the drive.

3,757,915

PRESSURE CONTROLS FOR INCHING CLUTCHES

Yutaka Momose, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi Pref., Japan

Filed Oct. 29, 1971, Ser. No. 193,666

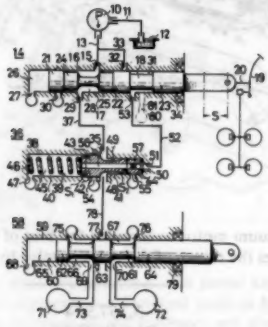
Claims priority, application Japan, Oct. 29, 1970, 45/095454

Int. Cl. F16d *67/04, 25/10*

U.S. Cl. 192—87.19 **12 Claims**

A transmission control system for a vehicle having fluid actuated frictional clutch means, comprising a source of pressurized fluid, a first fluid conduit connecting the source to the frictional clutch means, a regulator valve assembly disposed

within the first conduit for controlling fluid pressure discharged from the source for the clutch means, an inching valve means disposed within the first conduit being mechanically connected to a manually operable pedal, and a second normally closed fluid conduit for on-off controlling by the inching valve means, the second conduit being adapted for conveying fluid pressure supplied from the source to the regulator valve assembly for rapidly lowering the controlled fluid pressure, whereby when the second conduit is opened by depressing of the pedal, the controlled fluid pressure is lowered rapidly, and then the lowered fluid pressure is gradually regulated by the movement of the inching valve means corresponding to the degree of the depression of the pedal.



3,757,916

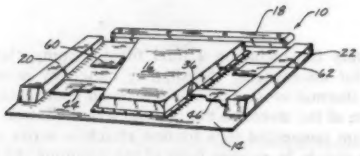
SELF-ENFORCING PARKING SYSTEM

Clark L. Selby, 1004 Shady Ln., West Liberty, Iowa

Filed Oct. 20, 1971, Ser. No. 190,979

Int. Cl. G07c 1/30; G07f 17/24

U.S. Cl. 194—1 R **1 Claim**



A self-enforcing parking system is disclosed herein wherein the motorist must deposit the proper monetary amount in a meter before he can remove his vehicle from the parking stall. The stall comprises a flat plate having wheel guides thereon which aid in properly positioning the front wheels of the vehicle as it is driven into the stall. A front curb is positioned at the forward end of the stall to position the vehicle front wheels on a pair of pressure pads having normally open switches therein. A pair of barrier plates, driven by a hydraulic cylinder means, pivotally move upwardly behind the vehicle front wheels after the vehicle is properly positioned on the pressure pads. When the motorist desires to leave the parking stall, he must deposit the proper amount of coins in the meter to cause the barrier plates to be lowered by the hydraulic cylinder means. The parking charges are directly indicated on the meter to indicate the fee which must be paid.

3,757,917

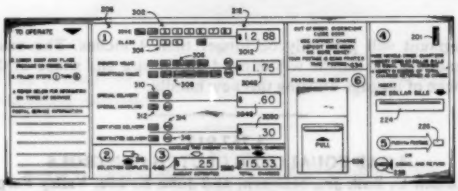
LOGIC SYSTEM FOR A POSTAL FACILITY

William P. Waiwood, Mentor; John E. Trybuski, Parma; Wendel M. Friedl, Cleveland, and Thomas S. Cross, Richfield, all of Ohio, assignors to Design and Development, Incorporated, Cleveland, Ohio

Filed Dec. 30, 1971, Ser. No. 213,995

Int. Cl. G06f 15/20

U.S. Cl. 194—10 **13 Claims**



A logic system including an array of input push buttons, a scale, a postage printer, and a money changer performs all the necessary steps in calculating the postage required by parcels. The system includes a memory containing all the postage charges applicable to any given combination of weight, class of postage, delivery zone, and special service. When a parcel has been placed upon the system scale and after appropriate class, zone, and special-service push buttons have been depressed, the logic system computes postage by summing the applicable postage charges which are retrieved from the system and memory. The system then accepts money, makes change, and prints out an appropriate postage label for attachment to the parcel.

3,757,918

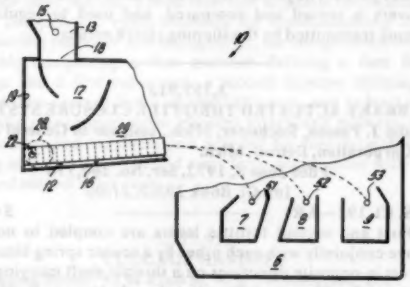
METHOD AND APPARATUS FOR COIN DISCRIMINATION UTILIZING A COIN IMPELLER

Guy Lloyd Fougere, Sandy Pond Rd., Lincoln, Mass.

Continuation-in-part of Ser. No. 120,652, March 3, 1971, Pat. No. 3,701,405, which is a continuation-in-part of Ser. No. 858,351, Sept. 16, 1969, abandoned. This application July 5, 1972, Ser. No. 269,129

Int. Cl. G07f 3/02

U.S. Cl. 194—101 **27 Claims**



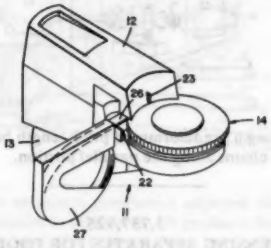
A method of coin discrimination and a coin discriminator are disclosed which utilize a coin impeller, the impeller comprising magnetic field means for accelerating each coin to a velocity primarily dependent upon the coin's characteristics of electrical conductivity and density, for discriminating among coins based upon the trajectory of the accelerated coin.

3,757,919

EMBOSSING TOOL TAPE CUT-OFF MECHANISM

Dane Harald Pedersen, Berkeley, Calif., assignor to Dymo Industries, Inc., Alameda, Calif.

Filed Sept. 23, 1971, Ser. No. 182,961
Int. Cl. B41j 1/30
U.S. Cl. 197—6.7 3 Claims



A cut-off mechanism incorporated in an embossing tool for applying indicia on a strip of tape-like material and effecting cut-off of the embossed strip to form a label, which mechanism facilitates a relatively simple, low-cost design of the overall tool. The mechanism features a strip cut-off knife and vertically opposed depressible anvil which are carried by a rotatable embossing die wheel mounted upon the tool body. The knife and anvil are selectively positionable upon rotation of the die wheel to locations upwardly and downwardly disposed relative to a central opening of a transverse tape guide channel formed in a bridge member secured to the body so as to be on opposite sides of a tape fed through the channel. An underlying spring loaded depressible handle pivotally secured to the forward end of the body is provided with an upstanding embossing stud which is aligned with the bridge opening upon depression of the handle and urges the anvil upwardly through the opening towards the knife to cut-off the tape in the channel disposed therebetween. As a principal feature, the bridge member includes a very narrow transversely extending ledge at one longitudinal end of the channel opening to support the tape during embossing and cut-off operations effected by the embossing stud urging dies or the anvil upwardly through the opening. In addition, the opposite ends of the anvil are closely inwardly spaced from the opposite ends of the knife such that the anvil clears the ledge during traversal of the opening. The tape is thereby cut in a central transverse region closely spaced inwardly from the opposite side edges thereof such that the very narrow uncut regions adjacent the side edges still permit severance of the tape upon pulling of same apart.

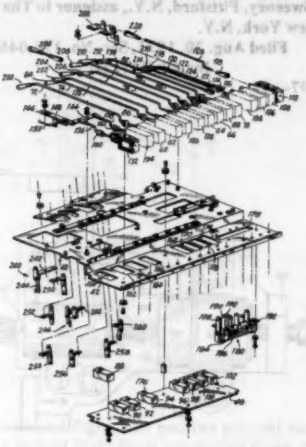
3,757,920

ELECTRIC TYPEWRITER WITH INPUT-OUTPUT ARRANGEMENT

Edgar Wolf, New Hope Park; Edward Lau, Old Westbury, and Joseph F. Polizzotto, South Babylon, all of N.Y., assignors to Redactron Corporation, Hauppauge, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,325
Int. Cl. B41j 5/30, 23/02
U.S. Cl. 197—19 15 Claims

An electric typewriter is adapted to input-output functions without increasing the height thereof by arranging, at the rear and within the bottom of the typewriter, a supplemental structure including solenoids to operate the typewriter keys and function mechanisms, and switches to generate signals to be fed to an electronic data unit. The solenoids and switches are coupled to the various typewriter mechanisms by rods having a lost motion connection with the solenoids so that the switches can be operated without effecting the solenoids. A special strobe arrangement is provided in which reed switches are juxtaposed to spaced parallel magnets which are cyclically bridged by a rotating butterfly.

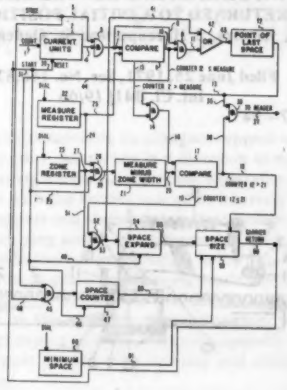


3,757,921

RIGHT HAND MARGIN CONTROL SYSTEM

David A. Bishop, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1970, Ser. No. 100,974
Int. Cl. B41j 5/30
U.S. Cl. 197—19 4 Claims



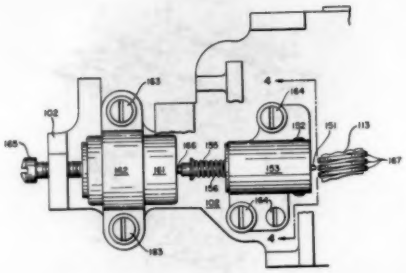
A system which accepts an input medium and provides an output copy having a right hand edge which is controlled by means of a variable control zone. The control zone may be made 1) relatively wide with a resultant extremely ragged right hand edge; 2) quite narrow with a resultant slightly ragged right hand edge; or 3) equal to a value of one escapement unit with a resultant even right hand edge. The system is operable such that in the event that more than one word space occurs in the zone, the word space nearest to the right hand side of the zone which corresponds to the end of the measure is chosen. No operator intervention is necessary to achieve the desired result after the system has been started.

3,757,922

PRINTER CARRIER DRIVE

David F. Sweeney, Pittsford, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Aug. 30, 1971, Ser. No. 176,046
Int. Cl. B41j *1/22*
U.S. Cl. 197—49 **9 Claims**



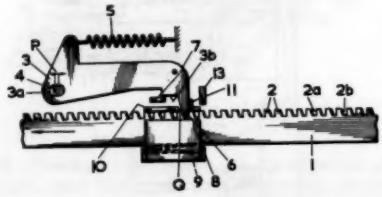
A new and improved technique and device is disclosed for selectively coupling a print wheel carrier with a constantly rotating lead screw. The engaging device comprises a rotatable engaging member which is in rolling engagement with the lead screw. This relationship reduces the friction and wear between the members. The technique also facilitates rapid decoupling and minimizes carrier over-travel.

3,757,923

SILENCER FOR ELIMINATING NOISE CAUSED BY A PAWL ON A GEAR RACK WHEN THE GEAR RACK IS RETURNED TO A INITIAL POSITION

Paul L. M. Kosters, 3 Hazenputten, St. Oedenrode, Netherlands

Filed June 25, 1971, Ser. No. 156,877
Int. Cl. B41j *19/66*
U.S. Cl. 197—94 **4 Claims**



A structure disposed on a gear rack for preventing the point of a carriage control pawl from sliding over the teeth of the gear rack during carriage return.

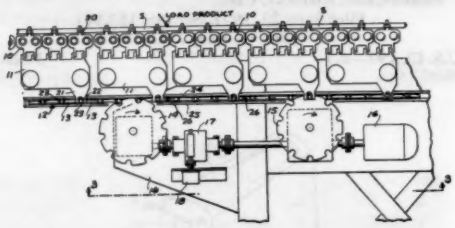
3,757,924

CHAIN DRIVEN MACHINERY

Louis P. Yakubek, Perrysburg, Ohio, assignor to Owen-Illinois, Inc., Toledo, Ohio

Continuation-in-part of Ser. No. 6,895, Jan. 29, 1970, abandoned. This application Sept. 30, 1971, Ser. No. 185,285
Int. Cl. B23q *5/22*
U.S. Cl. 198—19 **2 Claims**

In chain driven machinery, a pair of endless chains, each of which has work elements thereon. Portions of the chains are moved in parallel relation to one another. Means are provided for maintaining a predetermined pitch length between the elements of the chains along the parallel portion.

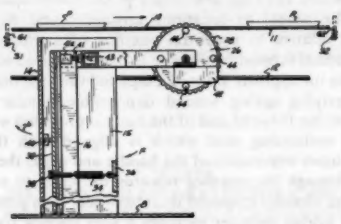


3,757,925

MOTION SENSING APPARATUS FOR FOOD HANDLING OR THE LIKE

Gerald J. Luther, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich.

Filed Apr. 16, 1971, Ser. No. 134,613
Int. Cl. B65g *43/08, 43/00*
U.S. Cl. 198—37 **4 Claims**



Apparatus for use in a bakery, for example, wherein a conveyor system for conveying products, such as panned dough moves in a forward path of travel. A control system is provided which includes a control having a plurality of operating positions or conditions for controlling or affecting the products or the system to produce a desired result, and there is a sensor for sensing the presence of a product on the conveyor, a sensor for indicating if the passage of the products on the conveyor is interrupted, and apparatus connected to the sensors for operating the control system when a product on the conveyor is not moving forwardly.

3,757,926

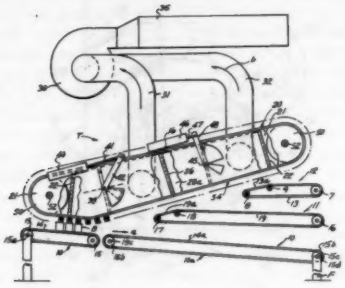
TRANSFER APPARATUS

Rober J. Gendron, Bridgeport, and Carl Richard Skarin, Saginaw, both of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.

Filed June 29, 1971, Ser. No. 151,072
Int. Cl. B65g *43/00, 47/00*
U.S. Cl. 198—38 **20 Claims**

Apparatus for selectively removing or not removing products such as bakery products from a conveyor and transferring those removed to any selected one of a plurality of superposed discharge conveyors including: a multiple chamber, downwardly opening vacuum box positioned above the feed conveyor and connected to a vacuum source, an endless pick-up conveyor covering the opening in the box and having resilient bellows members positioned on its outer face for sealing to the tops of the products on the feed conveyor when vacuum is communicated thereto to lift the products as the

belt moves in an endless path of travel, and actuable valve members in the chambers for releasably and selectively blocking communication of certain portions of the chambers,



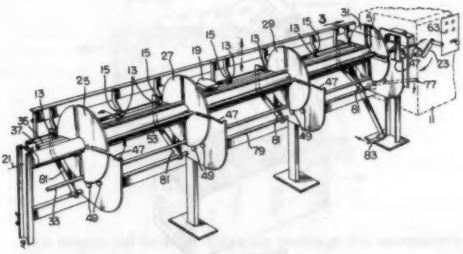
and the bellows members positioned adjacent thereto, with the source of vacuum to selectively lift products from the conveyor and to selectively deposit them on any one of the discharge conveyors.

3,757,927

BAR STOCK STORAGE DISPENSING AND FEEDING APPARATUS AND METHOD

Charles E. Gable, and Marcus A. Gotsch, both of Fort Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.

Filed Sept. 13, 1971, Ser. No. 179,786
Int. Cl. B65g *37/00*
U.S. Cl. 198—105 **16 Claims**



Method and apparatus for storing dispensing and feeding bars of stock to a material processing device includes a rotatable magazine to and from which bars of stock are transferred laterally and a bar support rack which receives the bars one at a time from the magazine, and transfers them axially into or out of a device such as a lathe for machining. Means are provided for the bidirectional transfer of bars of stock between the magazine and the support rack so that an unused portion of a bar of stock may be removed from the lathe and transferred back into the magazine for storage or disposal. A bar of stock is moved axially along the bar support rack by a pair of skewed concave rollers so that a bar is simultaneously moved axially and rotated about its axis to thus aid in inserting the bar into the lathe spindle collet.

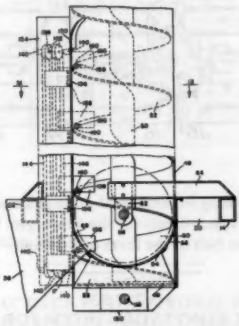
3,757,928

AUGER CONVEYOR

Richard Wayne Hook, and Richard David Zaun, both of Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Dec. 17, 1971, Ser. No. 209,116
Int. Cl. B65g *15/14*
U.S. Cl. 198—160 **20 Claims**

A generally upright auger conveyor is illustrated as part of a beet harvester and includes an endless chain carrying a plurality of paddles which extend into the confines of the helical flight of the auger. Engagement between the paddles and helical flight drives the endless chain so that the paddles are ad-



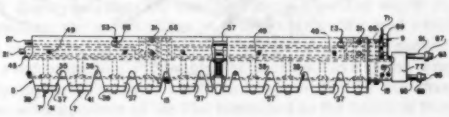
vanced by the helical flight. The paddles prevent material advanced by the helical flight from gravitating down the helical flight and thereby increase the efficiency of the auger conveyor.

3,757,929

BOTTLE CARRIER

Henry E. Hull; Herbert C. Abrams, and Charles A. Cummings, all of Columbus, Ohio, assignors to Liberty Glass Company, Sapulpa, Okla.

Filed Sept. 27, 1971, Ser. No. 183,997
Int. Cl. B65g *15/00*
U.S. Cl. 198—179 **16 Claims**



A bottle carrier comprising an elongate support adapted to be conveyed by conveyor means in a direction at right angles to its length, having means for clamping a plurality of bottles at their moutns with the bottles spaced at intervals along the length of the support and suspended at their mouths from the support, the clamping means being formed to clamp the bottles on the outside thereof immediately below the "finish" at the bottle mouths, a plurality of spring-loaded bottle mouth centers carried by the support for entry in the mouths of the bottles gripped by the clamping means to center the bottles relative to the clamping means, and means operable from one end of the support for effecting opening and closing of the clamping means.

3,757,930

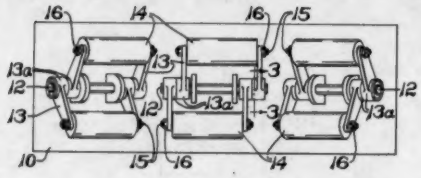
CONVEYOR BELT SUSPENSION

James H. Kramer, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed May 18, 1970, Ser. No. 38,203
Int. Cl. B65g *15/08*
U.S. Cl. 198—192 **3 Claims**

A resilient idler suspension for conveyor belts having suspension arms cantilevered in pairs axially spaced about a common pivot shaft with each of the arms attached to the pivot shaft by an intermediate elastomeric torsion spring such that rotation of the arms about the pivot shaft is resiliently re-

sisted. Pairs of arms each have a conveyor idler roller rotatably mounted between the free ends of the arms. Three of



the pivot shafts may be arranged in angular relationship in a common plane transversely of the conveyor belt so that the idlers support the belt in the form of a trough.

3,757,931

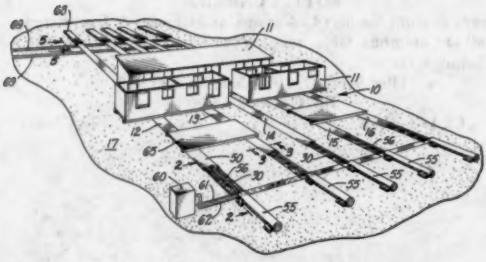
AUTOMATIC CONVEYOR SYSTEM FOR BUILDINGS AND THE LIKE

Terry M. Baker; Henry W. Huthsing; Robert B. Kieding, and Edwin D. Reddan, all of Santa Barbara, Calif., assignors to Rolair Systems, Inc., Santa Barbara, Calif.

Filed June 9, 1971, Ser. No. 151,318

Int. Cl. B65g *25/04*

U.S. Cl. 198—218 **9 Claims**



A conveyor system for handling large units such as houses and portions thereof. A plurality of parallel conveyor plates set in the floor of an assembly area, with compliant air bearing or air cushion units for raising the plates to engage and raise the loads from the floor, and drive units for translating the raised plates and loads, after which the air bearing units are deflated to lower the loads to the floor in a new position and the plates are moved in the opposite direction to the initial position. A bed for a plurality of air bearing units with the bearing surfaces between the bed and the plate to support the reciprocating load carrying plate.

3,757,932

SPRING SYSTEM FOR VIBRATORY PARTS FEEDERS

Daniel J. Baljet; George A. Sodderland, and John D. H. Hania, all of London, Ontario, Canada, assignors to Advanced Automated Equipment Ltd., Ontario, Canada

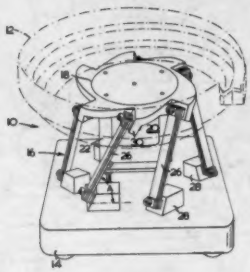
Filed Jan. 17, 1972, Ser. No. 218,433

Claims priority, application Canada, Nov. 12, 1971, 127489

Int. Cl. B65g *27/00*

U.S. Cl. 198—220 BC **4 Claims**

A vibratory parts feeder includes a massive base and a mount supporting a feeder bowl having an upwardly inclined spiral ramp therein along which the parts progress during operation. The feeder bowl mount is supported over the base by a plurality of elongated leaf spring units which are arranged in a generally circular array about a central region of the feeder. The elongated springs are each inclined at a primary angle relative to the base as measured in a vertical plane and



are also each inclined inwardly from the vertical towards said central region by a relatively small secondary angle.

3,757,933

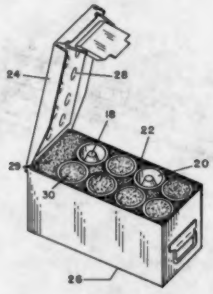
CONTAINER FOR PACKAGING A PLURALITY OF EXPLOSIVE UNITS SO AS TO PREVENT SYMPATHETIC DETONATIONS

Charles C. Banta, Hamburg, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 27, 1971, Ser. No. 137,904

Int. Cl. B65d *51/16*; **F42b** *37/00, 39/00*

U.S. Cl. 206—3 **4 Claims**



A container for packaging a plurality of explosive units so as to prevent sympathetic detonations comprises a box containing a plurality of hollow tubes with explosive units slidably set within the tubes. Frangible areas are carried by portions of two opposite walls of the box proximate the ends of the tubes. The frangible areas operating with the hollow tubes permit a rapid release of explosive gases generated upon a single premature detonation and isolate adjacent explosive units from a residual shock wave that would otherwise trigger sympathetic detonations.

3,757,934

TELESCOPING DISPLAY ASSEMBLY

Ethel B. Taub, Highland Park, Ill., assignor to Ronald H. Taub, Highland Park and Charles C. Kirschbaum, as trustees of the Ronald H. Taub Trust, Highland Park, Ill.

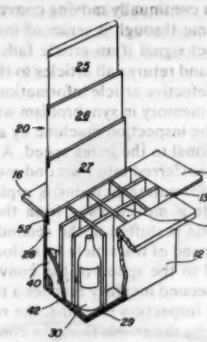
Filed May 15, 1972, Ser. No. 253,050

Int. Cl. B65d *77/24*; **G09f** *1/06*

U.S. Cl. 206—44 R **7 Claims**

An extensible and collapsible, telescoping display assembly which includes an array of longitudinally aligned, overlapping panels adapted to interlock by means of integrally formed cooperating tabs and slots. When collapsed, the assembly is

adapted to fit within a container of merchandise, and when the merchandise reaches its point of sale the assembly is quickly



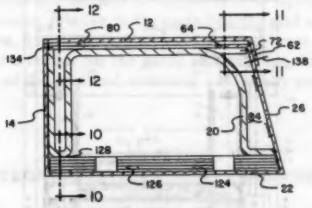
erected into a stable, multi-panel display by simple telescopic extension of panels outwardly from the container.

3,757,935

BATHTUB CONTAINER

Everett A. Coons, West Monroe, La.; Lewis D. Poggiali, and Richard P. Jacalone, both of Owosso, Mich., assignors to Olinkraft, Inc., West Monroe, La.

Filed Feb. 4, 1972, Ser. No. 223,582
Int. Cl. B65d *85/54, 5/32*
U.S. Cl. 206—46 H **6 Claims**



An improved bathtub shipping package for completely encircling the bathtub to protect the bathtub from rough handling and the elements of weather. The package comprises a wrap-around tube member having a pair of unique end caps fixedly attached to the tube member, the end caps having built in means for reinforcing the end caps from horizontal and vertical shock as well as built in protective pads for protecting the top end portions of the bathtub whenever the bathtub is placed within the package. The structural manufactured joint for the tube member is formed at the bottom rear of the tube which serves to cushion the rear legs of the bathtub whenever the bathtub is placed within the package. The end caps are positioned within the tube in combination with the structural manufactured joint so that longitudinal stapling of the end caps to the tube member is easily accomplished due to the resistance of the structural manufactured joint.

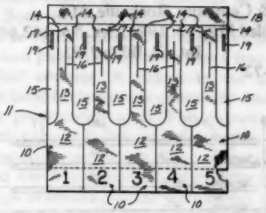
3,757,936

DRYCLEANING TAG

Erik D. Lindegren, 303 Dahl St., Rhinelander, Wis.

Filed July 28, 1971, Ser. No. 166,901
Int. Cl. B65d *83/00, 85/62*
U.S. Cl. 206—56 AB **7 Claims**

Sheets of spun bonded polyolefin are stapled together to form a pad. Five tags are cut in each sheet and are dispensed by pulling them to tear a bridge of uncut material. The tags have a label portion and a relatively long and narrow tongue portion containing a slit. Tags are attached to clothing by



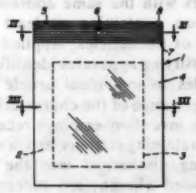
passing the tongue portion through an opening in the garment and forming a loop by feeding the label portion through the slit in the tongue portion.

3,757,937

DISPLAY PACKAGE WITH INTEGRAL HEADER AND METHOD OF PRODUCING THE SAME

Raymond P. Weinstein, Carnegie, Pa., assignor to A. J. Weinstein Company, Carnegie, Pa.

Filed Nov. 19, 1971, Ser. No. 200,447
Int. Cl. B65d *73/00, 65/16*
U.S. Cl. 206—80 R **11 Claims**



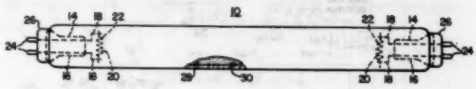
A display package for merchandise is provided which encapsulates the merchandise in a shrink-wrap film and which has an integral header to enable easy hanging of the package on a rod or the like. Preferably, the package has a shrink-wrap polyethylene film and a cardboard support for the merchandise, with a portion of the film laminated to the board to form a header or border. The header may then be punched so that an aperture is formed for hanging of the package.

3,757,938

METHOD OF REMOVING ULTRA FINE PHOSPHOR PARTICLES OF A $(ZN,MG)_2(SI,GE)_{O4}$:MN PHOSPHOR

Anselm Wachtel, Parlin, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 3, 1971, Ser. No. 112,187
Int. Cl. B03d *3/00*
U.S. Cl. 209—5 **2 Claims**



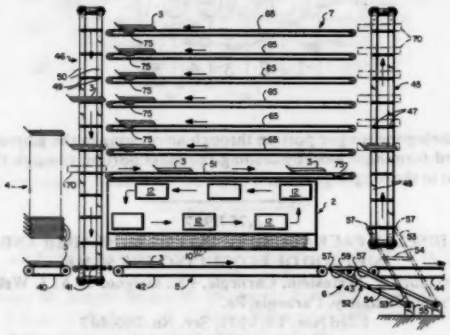
Method of sizing a zinc-magnesium silico-germanate phosphor to remove the ultra fine particles to improve the performance of a discharge lamp, comprising suspending the finely divided prepared phosphor in an aqueous solution of ionizable aluminum compound or diethylenetriamine pentaacetic acid chelating agent, then settling the phosphor and removing the ultrafine particles which remain in suspension, and thereafter repeating the foregoing procedure with a water vehicle in order to remove remaining ultrafine particles and residual solute.

3,757,939

METHOD AND APPARATUS FOR SORTING ARTICLES SUCH AS LETTERS

Seymour Henig, Kensington, Md., assignor to John I. Thompson & Company, Rockville, Md.

Filed May 12, 1971, Ser. No. 142,600
Int. Cl. B07c 3/02
U.S. Cl. 209—72 20 Claims



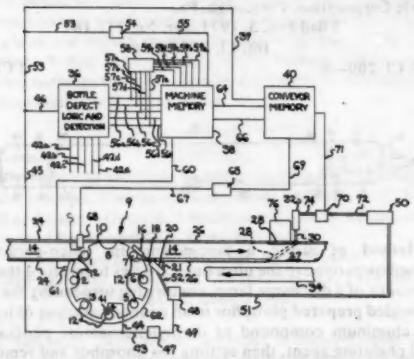
System and method for sorting articles, particularly letter mail, in such fashion that articles having a common characteristic, e.g., letters with the same address, are delivered as containerized group containing at least a predetermined threshold number of the articles. Applied to systems of the type wherein a classifying apparatus identifies each article and delivers the articles to individual article retaining stations while retaining cognizance of the characteristics and locations of the articles, the invention employs receptacles which are advanced past the retaining stations, articles having a common characteristic being discharged into the same receptacle, means being provided whereby any receptacle in which less than a predetermined number of articles have been accumulated can be transferred to storage and later retrieved and advanced again past the article retaining station for addition of more articles having the same characteristic.

3,757,940

MEMORY SYSTEM HAVING TWO CLOCK PULSE FREQUENCIES

David A. Damm, Toledo, Ohio, assignor to Owens-illinois, Inc., Toledo, Ohio

Filed June 19, 1972, Ser. No. 263,966
Int. Cl. B07c 5/00
U.S. Cl. 209—74 M 21 Claims



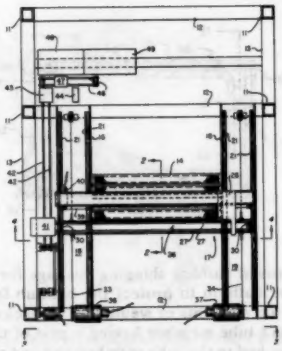
A series connected dual memory system in which the clocking frequency of one memory is independent of the clocking frequency of the other memory. This system is designed to store and shift defective article information generated by an article inspection machine. The machine removes articles from a continually moving conveyor, indexes the articles one at a time through a series of inspection stations, generates a defect signal if an article fails to pass any one of the inspections, and returns all articles to the conveyor. A first memory stores defective article information. This information is shifted in the memory in synchronism with the index of the article through the inspection machine by a clock pulse at a frequency proportional to the index speed. Any defective article information is transferred into a second memory as the article to which the information pertains is replaced on the conveyor. As the article is moved away from the inspection machine, the information is shifted in the second memory in synchronism with the speed of the article by a clock pulse at a frequency proportional to the speed of the conveyor. When the information in the second memory reaches a rejection station downstream of the inspection machine, the rejection station is activated to remove the article from the conveyor.

3,757,941

DOCUMENT AND INFORMATION STORAGE AND RETRIEVAL SYSTEM

Wayne D. Anstin, Cupertino; Joseph E. Byrne, Los Altos; Gilbert F. Clifford, Los Altos Hills; Robert W. Henkel, Cupertino; Arthur W. Odell, Atherton; Lawrence T. Quaglia, Sunnyvale, and Donald F. Smith, Palo Alto, all of Calif., assignors to Varian Adco, Palo Alto, Calif.

Filed Nov. 3, 1971, Ser. No. 195,088
Int. Cl. B07c 5/342
U.S. Cl. 209—80.5 27 Claims



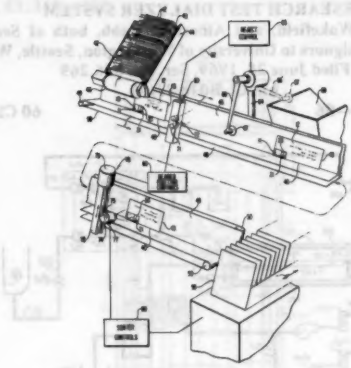
Documents or information in the form of microfilm, microfiche or other permanent form are mounted on rectangular frames or carriers which are edge coded. A plurality of carriers are stored in a random manner in spaced slots arranged in one or more elongated storage bins with the bins arranged side by side. A bridge which carries a random document locator and retrieve and refile head assembly is adapted to move across the bins to a selected bin. The document locator, retrieve, and refile head assembly then moves along the bridge over the selected bin to store or retrieve selected carriers. During location, the coded edges are scanned to locate the desired carrier; an electrical control starts the retrieve cycle to pick up the carrier having the desired document and deposits the carrier on a conveyor system for transport to an output location where the document or information is presented to a video camera and the signal from the camera may be transmitted to a remote video terminal for viewing. The carrier is then returned to the document refile assembly along the same conveyor system where it is picked up and refiled by the head assembly.

3,757,942

ARTICLE SORTING APPARATUS AND METHOD

Damon M. Gunn, 4007 49th St. N.W., Washington, D.C.

Filed Nov. 23, 1970, Ser. No. 91,701
Int. Cl. B07c 5/34
U.S. Cl. 209—111.5 13 Claims



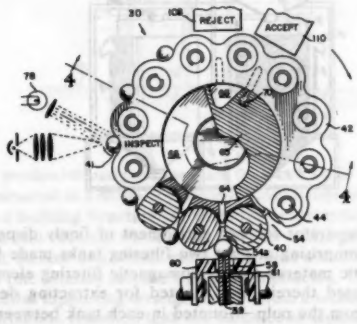
There is disclosed an article sorting apparatus and method wherein articles bearing a manually marked code in a grid or code area locatable by one or more guide elements which may be separate and distinct from the manually marked code. For postal articles, such as letters and the like, the code may be the zip code, preferably associated with a unique postage stamp. The code is marked on grid by dots, circles, lines "X" or like optical marks. On passing through a reading station, the articles, particularly postal articles, are turned upside down so as to minimize the amount of adjustment or orientation of the optical reader relative to the code bearing grid and also to accomodate, for example, various sized envelopes. There is also disclosed a reader for the guide elements for determining the location of the grid and orienting a manually marked reading device.

3,757,943

ELECTRONIC SYSTEM AND METHOD FOR CAPSULE INSPECTION

Hi Chul Chae; Richard Gelinas; Jon Caton Trusty, and Walter H. Berntsen, all of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, N.Y.

Filed Sept. 27, 1971, Ser. No. 183,948
Int. Cl. B07c 5/342
U.S. Cl. 209—111.7 39 Claims



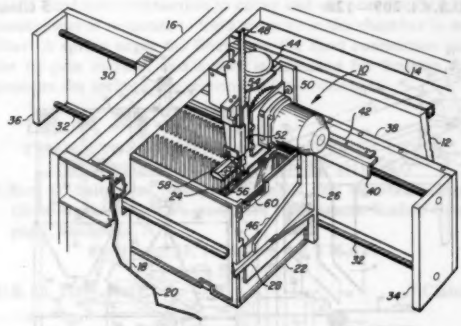
An electronically controlled system and method for processing the signals obtained from an optical inspection of rapidly presented and rotated medicinal capsules. Built-in deviations in the capsule structure are differentiated from structural defects which may occur and the decision made to accept or reject each capsule. The occurrence of a defect or a built-in deviation causes photo detectors to have a current spike output. Both the defect and the built-in deviation spikes are converted to digital pulses. The defect pulses are counted and the deviation pulses are used to reset a free-running oscillator controlled counter. A defect in the circumferential vicinity of the built-in deviations causes the built-in deviation counter to be prematurely reset. This causes a defect to be recorded. Each capsule is redundantly examined. A sufficient number of reoccurrences of any defect causes a shift register to be activated which initiates and controls the rejection of the capsule. Optical readouts present the number of rejected and accepted capsules, and the percentage of rejected capsules for each lot of 1,000 capsules which are inspected.

3,757,944

OPTICAL VERIFICATION DEVICE

Allan C. Goodman, 6431 Lake Apopka, San Diego, Calif.

Filed Jan. 15, 1971, Ser. No. 106,828
Int. Cl. B07c 5/342
U.S. Cl. 209—111.7 9 Claims



An optical device useful in selecting and verifying the position of projection slides, slide magazines, etc., is disclosed. The verification device includes a mounting strip adapted to be removably attached to the edge of a projection slide, a slide magazine end panel, etc. A number of reflective elements are secured to the strip by frangible webs along a line. Selected elements may be easily broken away to provide a coded array of reflective and non-reflective elemental areas. A sensing means including a light source and photodetector past which a group of the coded devices is passed can select a slide, or verify the presence of a desired slide, according to the coded pattern of reflecting and non-reflecting elemental areas.

3,757,945

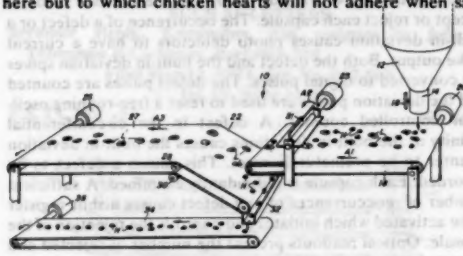
APPARATUS AND METHOD FOR SEPARATING HEARTS AND LIVERS FROM A MIXTURE THEREOF

Marlin Edward Keiter, Jr., Berlin, Md., assignor to Showell Poultry, Inc., Showell, Md.

Filed Feb. 4, 1972, Ser. No. 223,673
Int. Cl. B07c 3/02
U.S. Cl. 209—114 4 Claims

A conveyor system having a moving belt depositing a mixture of hearts and livers to an inclined, moving conveyor

which conveyor has a surface to which chicken livers will adhere but to which chicken hearts will not adhere when said



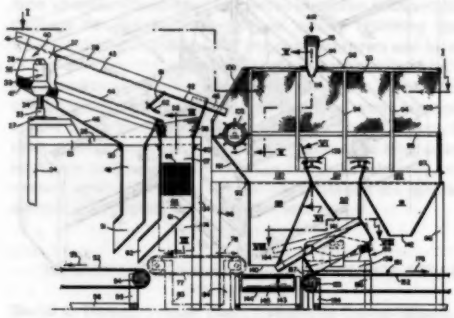
inclined conveyor is moving at a selected speed and disposed at a selected angle.

3,757,946

TRASH SEPARATING APPARATUS

Lawrence Berkowitz, Willingboro; Georgs Novickis, Lindenwold, both of N.J., and Prafulchandra N. Sheth, Lansdowne, Pa., assignors to Dickson Paper Fibre, Inc., Philadelphia, Pa.

Division of Ser. No. 846,320, July 31, 1969, Pat. No. 3,643,797. This application Feb. 14, 1972, Ser. No. 225,904
Int. Cl. B07b *13/10*
U.S. Cl. 209—120 **5 Claims**



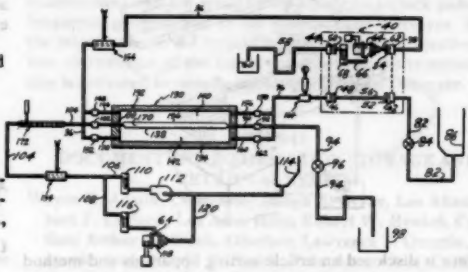
A system is provided for reclaiming usable paper from a heterogeneous trash mixture that has previously been shredded to a predetermined size. The trash is deposited on a sloped vibrating screen which permits the passage therethrough of smaller sized trash particles. These particles then pass onto another sloped vibrating screen whereby minutely sized particles may pass therethrough, to be discarded. The smaller sized particles that pass through the first screen, but not the second then enter a chute which has a cross current in the form of an air stream, whereby paper, light sheet plastic and the like are forced from the smaller sized mixture and are delivered onto a conveyor. The larger sized particles that do not pass through the first vibrating screen are delivered onto a trash wheel, which is rotating, and which throws the larger sized particles in a given direction whereby the particles travel a given distance depending upon their eight, or upon their ability to be thrown, with at least the heavier of these larger particles passing through an air screen directed toward a series of bins. The lighter of these larger particles are collected in a bin which is located most closely to the trash wheel, which bin deposits these lighter particles onto the conveyor. Trash which is thrown into an intermediate bin is deposited onto another sloped vibrating screen, whereby larger paper materials are separated from smaller but heavier trash components such as heavier plastics, with the thus separated paper materials also passing onto the conveyor. The conveyor then passes beneath an extractor which removes sheet plastic films and the like therefrom, preferably by means of electrostatic attraction of the plastic films from the paper materials, resulting in paper reclamation having an acceptable minimum percentage (if any) of non-paper materials therein.

3,757,947

RESEARCH TEST DIALYZER SYSTEM

Albert W. Wakefield, and Albert L. Babb, both of Seattle, Wash., assignors to University of Washington, Seattle, Wash.

Filed June 25, 1969, Ser. No. 836,269
Int. Cl. B01d *31/00*
U.S. Cl. 210—86 **60 Claims**



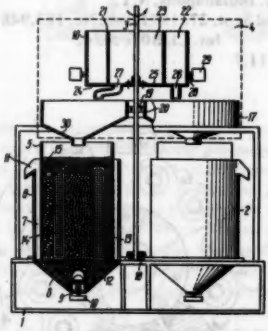
A test unit and a method for testing membranes, membrane support systems and solution diffusivities for parallel and countercurrent flow of liquids, temperature effect on liquids, pressure effect on liquids with respect to a positive pressure and to a negative pressure, for two and three liquid systems, and for use under sterile and nonsterile conditions.

3,757,948

FILTER SEPARATOR FOR WET ENRICHMENT OF FINELY DISPERSED MATERIALS

Sergei Alexeevich Tikhonov, prospekt Kirova, 28, kv. 61; Gennady Georgievich Judin, prospekt Kirova, 28, kv. 1, and Ninel Alexandrovna Babushkina, ulitsa Gagarina, 26, kv. 24, all of Simferopol, U.S.S.R.

Filed Mar. 29, 1971, Ser. No. 128,855
Int. Cl. B01d *25/30, 35/06*
U.S. Cl. 210—102 **8 Claims**



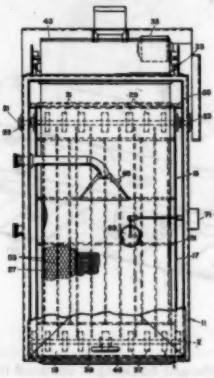
A filter separator for wet enrichment of finely dispersed materials comprising at least two filtering tanks made from non-magnetic material with ferromagnetic filtering elements accommodated therein and adapted for extracting desired materials from the pulp. Mounted in each tank between the filtering elements are electromagnetic coils, and provision is made for a distributor unit for separate supply of pulp and water to each of the tanks, this unit being installed above the tanks with capability of turning about their axis of symmetry.

3,757,949

LIQUID FILTER DEVICE

Elmer F. Halvorsen, Indianapolis, and Harold R. Byrd, Lebanon, both of Ind., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed June 24, 1971, Ser. No. 156,254
Int. Cl. B01d 35/08
U.S. Cl. 210—122 4 Claims



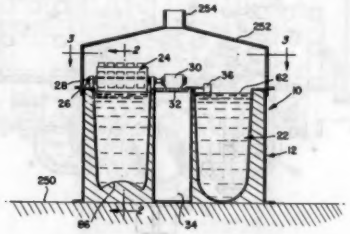
In a liquid filter device, a tank for receiving filtered liquid has a frame disposed therein and pivotably mounted at one end thereof. Rollers mounted at each end of the frame support a driven conveyor which carries filter media. A head is adapted to discharge fluid onto the filter media. Due to the pivotable mounting, the frame including the conveyor can be moved to an upright position for cleaning the filter device.

3,757,950

WASTE WATER TREATMENT PACKAGE PLANT HAVING A MODULAR DITCH MEMBER

Donald D. Zebley, Greenville, S.C., assignor to Edward F. Connors, Edgewater, Md.

Filed Mar. 2, 1971, Ser. No. 120,188
Int. Cl. C02c 1/10
U.S. Cl. 210—123 9 Claims



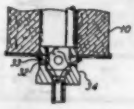
A predetermined package plant for waste water treatment is constructed in a modular fashion for installation inside or outside a building structure and includes a substantially elliptical ditch that receives waste water after an initial grinding treatment thereof and which has a controlled aerator whereby a high rate primary aerobic treatment is effected. The ditch has a central supporting arrangement wherein a settler tank and a chlorination retention tank are mounted in separate, removable and side-by-side communicating fashion. The settler tank receives controlled overflow from the ditch and mechanically acts thereon to return sludge to the ditch and pass clear water on to the chlorination retention tank wherein the water is chemically treated in a time controlled manner by virtue of a water controlled flow arrangement therein and then aerated and recycled directly to the building structure for utility use, at least.

3,757,951

FLUID FILTER WITH CLOGGING RELIEF MEANS

Philip D. Redenbarger, Centerpoint, and Ashok Khilnani, Terre Haute, both of Ind., assignors to J. I. Case Company, Racine, Wis.

Filed Feb. 7, 1972, Ser. No. 224,013
Int. Cl. B01d 35/14, 27/10
U.S. Cl. 210—131 1 Claim



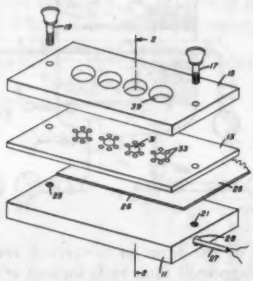
A fluid filter with clogging release means and including a filter member for filtering foreign particles from the fluid flowing through the member. A chamber exists in the filter member for receiving the fluid and a fluid inlet connection is in fluid flow communication with the chamber for directing fluid into the chamber. A fluid by-pass passageway is in the fluid inlet connection, and the filter is yieldingly urged relative to the fluid inlet connection to cover and uncover the by-pass passageway in response to fluid pressure in the chamber in the filter. A spring urges the filter over the fluid connection and the by-pass therein, and a stop is provided for limiting the pressure the spring can exert on the filter member.

3,757,952

TEMPLATE FOR APPLYING SAMPLES TO A THIN LAYER CHROMATOGRAPHIC SHEET

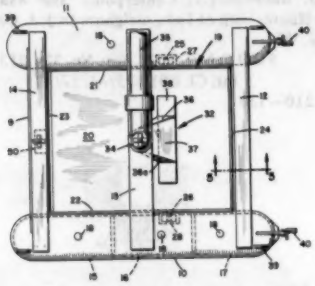
Albert D. Baltsholts; Nancy E. Jackobs, and Imants Timrots, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,627
Int. Cl. B01d 15/08
U.S. Cl. 210—198 C 7 Claims



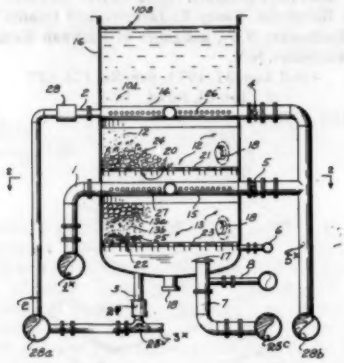
A template for holding a chromatographic sheet while permitting the application of one or a series of liquid samples rapidly and on a well defined area of fixed size comprises a base plate adapted to receive a chromatographic sheet on its surface, an applicator plate mating with the base plate and adapted to lie on the top of the sheet, and means for clamping the parts together to hold the sheet in place. The latter means can include a holding plate which mates with the applicator plate, and suitable means such as bolts for holding the elements together. The applicator plate has one or a series of holes for receiving liquid samples, and the holding plate has corresponding holes overlying the holes in the applicator plate for introduction of the liquid samples. Evaporation of solvent from the samples can be assisted by providing a suitable heater associated with the base plate.

3,757,953
DECANTING SKIMMER
William A. Sky-Eagle, Jr., 1038 Meadowbrook Dr., Corpus Christi, Tex.
Filed May 26, 1972, Ser. No. 257,283
Int. Cl. E02b 15/04
U.S. Cl. 210—242 4 Claims



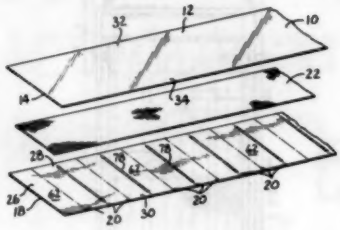
An apparatus for skimming oil or other scum from the surface of water, has floats supporting a sump tank with a weir at its forward end, means for pivoting the sump around a transverse axis to adjust the depth of the weir below the surface of the water and pumping means for withdrawing liquid collected in the sump.

3,757,954
TWO-WAY FILTER
Albert S. Toth, 205 W. End Ave., New York, N.Y.
Filed Dec. 15, 1971, Ser. No. 208,297
Int. Cl. B01d 29/08
U.S. Cl. 210—277 2 Claims



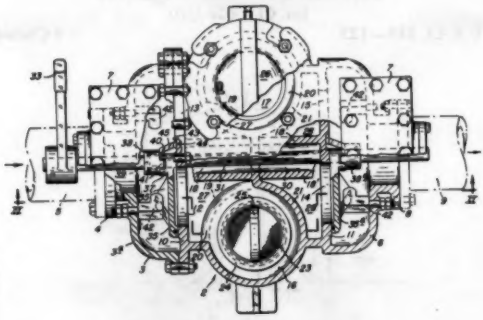
Apparatus in the form of a vertical vessel, having two spaced and supported filter beds located at either sides of a centrally located influent member, so that water to be treated is admitted to the apparatus through said influent member and a portion of the flow is filtered by passage through the lower filter bed and the second portion is filtered by its rise through the upper filter bed, the filtered fluid, for example water, being discharged to points of collection by separate effluent conduits, controlled by control and measuring devices. Valves adapted to close and open the influent member and the effluent conduits are provided, and a valved back-wash conduit is provided at the lower area of the vessel, together with an air-pressure inlet member. The top of each filter bed is provided with a valved outlet member leading to a conduit primarily for receiving dirty fluid by back wash and for discharging it from the vessel, the influent and the first named filtered fluid effluent valves being closed and the last named outlet member valves being opened.

3,757,955
MULTI-LAYER MEMBRANE TYPE MASS TRANSFER DEVICE AND PROCESS
Ronald James Leonard, Elk Grove Village, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Continuation-in-part of Ser. No. 73,524, Sept. 18, 1970, which is a continuation-in-part of Ser. No. 825,348, May 16, 1969, abandoned. This application Aug. 9, 1971, Ser. No. 170,163
Int. Cl. B01d 31/00
U.S. Cl. 210—321 45 Claims



A foldable cardboard backing is secured to one surface of a flexible mass transfer membrane to enable rapid formation of a folded multi-layered device by compressing the backing and membrane connected thereto into folds and then fixing the folds by sealing their ends.

3,757,956
TWIN BASKET STRAINER
Norman F. Bradel, Scott Township, Allegheny County, and Herbert L. Hormel, Oakdale, both of Pa., assignors to S. P. Kinney Engineers, Inc., Carnegie, Pa.
Filed Mar. 9, 1972, Ser. No. 233,180
Int. Cl. B01d 35/12, 29/38
U.S. Cl. 210—333 8 Claims

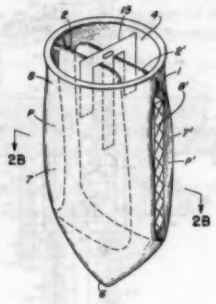


A twin basket strainer for industrial use has two baskets through which water to be strained is alternately passed so that one basket may be cleaned while the other is in use. Each basket is in a separate chamber, each chamber having an inlet port and an outlet port. A shaft supported in the body of the structure has a handle outside the body, and inside the body it has a valve disk near each end so arranged that when the shaft is rocked through a few degrees of arc the valve disks move from a position over the inlet and outlet ports of one chamber to a position clear of said ports but closing the corresponding ports of the other chamber.

3,757,957
EXTENDED FILTER BAG

Edward A. Smith, Glenville, Conn., assignor to GAF Corporation, New York, N.Y.

Filed Nov. 19, 1971, Ser. No. 200,331
Int. Cl. B01d 29/16
U.S. Cl. 210—486 12 Claims

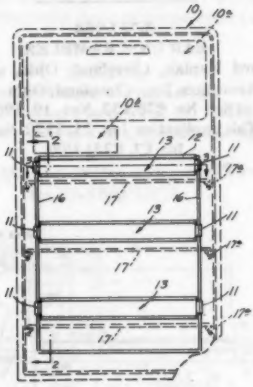


An improved filter bag arrangement making use of a number of internally disposed, integrally formed filter surface media adapted to increase the effective working area of the filter bag without an associated increase in external size. Drainage members are used in a manner to co-act with such additional surface areas to provide support for the internally placed filter media as well as to convey the filtered liquid to the outlet position for exit.

3,757,958
REFRIGERATOR GUARD

Lillian F. Kirkemo, 951 Ronald Ave., Apt. 311, Missoula, Mont.

Filed Oct. 22, 1971, Ser. No. 191,761
Int. Cl. A47f 5/00
U.S. Cl. 211—153 4 Claims

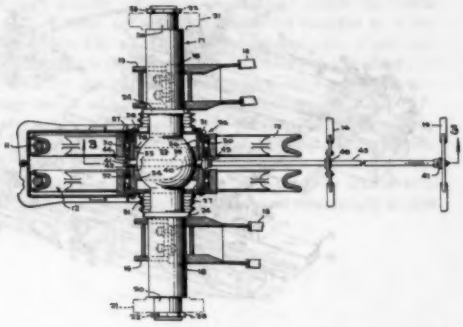


A device as described for preventing food and other items stored on the shelves of refrigerators and the like from slipping from the shelves after the refrigerator or other storage device has been subjected to jostling and the door thereof is subsequently opened. In its preferred form, the invention comprises a guard rail designed to hook over the top and bottom shelves of the refrigerator, having baffles mounted thereon. The baffles extend above each shelf so that items stored on the shelves will be unable to slip off.

3,757,959
BOOM POINT SHEAVE ASSEMBLY

George J. Thompson, and Vance D. Dutton, both of Marion, Ohio, assignors to Marion Power Shovel Company, Inc., Marion, Ohio

Filed Oct. 19, 1971, Ser. No. 190,575
Int. Cl. B66c 13/16
U.S. Cl. 212—1 19 Claims

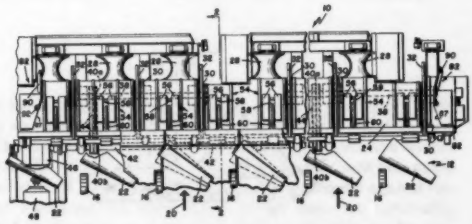


A boom point sheave mounting assembly for excavators, such as draglines, or shovels, which includes a sheave shaft mounted transversely of the boom in the boom side frames and carrying at least one ball at its center upon which a bearing carrier assembly is mounted for swivel movement. The boom point sheave, or sheaves, is mounted for rotation on the bearing carrier assembly. The shaft ends may project beyond the boom side frames and have the outboard ends of the boom pendants, or hoist ropes, connected to them. A torque rod, in some instances, is used to urge the sheave toward at rest position. This mounting assembly imposes sheave rotational loads, sheave swivel loads and boom suspension loads on a single transverse axis for direct application to the boom to put the boom in compression.

3,757,960
MATERIAL HANDLING APPARATUS

William J. Hill, and William R. Wynn, both of Holden, Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Dec. 22, 1971, Ser. No. 210,853
Int. Cl. B65b 35/30
U.S. Cl. 214—1 PB 3 Claims

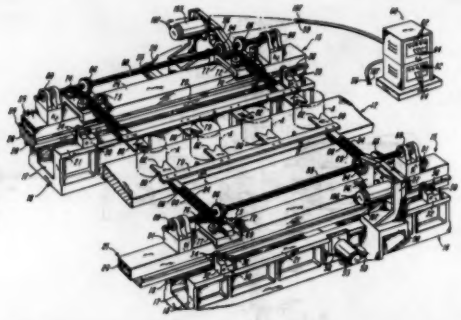


An apparatus for handling elongated elements which includes a downwardly sloping ramp along which the elements move laterally into an assembly notch. Alignment devices are provided at either end of the assembly notch for aligning the ends of elements being collected therein. The alignment devices axially adjust the elements by contacting the ends thereof.

3,757,961
ARTICLE TRANSFER APPARATUS

Orville W. Jacobs, Ludlow Falls, Ohio, assignor to The East Dayton Tool & Die Company, Dayton, Ohio

Filed Jan. 10, 1972, Ser. No. 216,392
Int. Cl. B65g 25/04
U.S. Cl. 214—1 BB 8 Claims

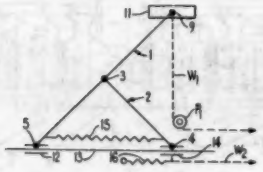


A series of articles are successively advanced in a step-by-step manner along a linear path by a transfer unit which includes a plurality of gripping members supported by parallel-spaced arms. The arms are supported for lateral movement relative to an elongated carriage which is supported for longitudinal movement. The arms are reciprocated as a unit by corresponding racks which engage pinions mounted on a splined shaft extending longitudinally of the carriage. The shaft is movable axially within a gear driven by a reversible stepping motor controlled by a pre-set control unit which also synchronously controls a reversible stepping motor for reciprocating the carriage. The control unit includes decade counters which may be adjustably set for precisely selecting the corresponding limits of longitudinal movement of the carriage and lateral movement of the arms and gripping members.

3,757,962
CONTROL MECHANISM FOR THE FINE POSITIONAL ADJUSTMENT OF AN OBJECT

Itzhak Chavet, Rehovoth, Israel, assignor to The State of Israel, Atomic Energy Commission, Ramat Avin, Israel

Filed Nov. 17, 1971, Ser. No. 199,424
Claims priority, application Israel, Nov. 19, 1970, 35691
Int. Cl. B25j 7/00
U.S. Cl. 214—1 CM 7 Claims

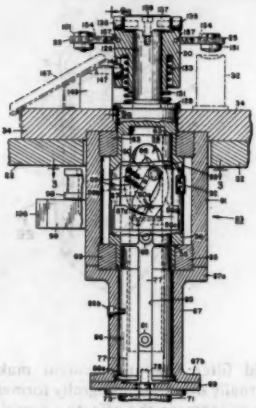


A control mechanism for the fine positional adjustment of an object, in at least two substantially perpendicular directions, substantially independently of each other, particularly for adjusting the position of objects inside sealed systems (e.g. vacuum-tight, pressure-tight or radiation-tight systems) by manipulation of controls outside of the systems whose motions can be transmitted into the sealed system through suitably tight seals.

3,757,963
MULTI-DIRECTIONAL INDEXING APPARATUS

Ralph N. Binkley, Yardley, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Apr. 6, 1971, Ser. No. 131,653
Int. Cl. B66c 1/02
U.S. Cl. 214—1 BH 23 Claims

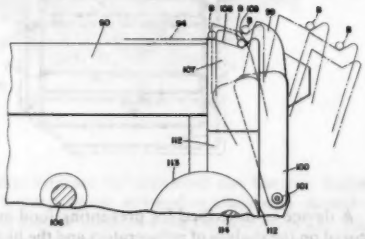


A multi-directional indexing apparatus for transporting articles in succession to and for depositing and/or picking-up such articles at a plurality of circumferentially disposed work stations. The apparatus comprises a multi-finger index table, with each finger having a vacuum pick-up head associated therewith for carrying the articles, and a drive mechanism including a barrel cam having a peculiarly shaped orbital cam passageway formed therein and a reciprocally movable cam follower for driving the barrel cam and the index table indirectly coupled thereto. A reciprocal, linear stroke of the cam follower during each composite indexing period sequentially effects, through the resultant rotational movements of the barrel cam, very precise multi-directional rotation and vertical displacement of the index table.

3,757,964
BAR UNSCRAMBLER

Irving Leonard Kaplan, Cleveland, Ohio, assignor to Carl Krasny & Associates, Inc., Cleveland, Ohio

Division of Ser. No. 878,132, Nov. 19, 1969, Pat. No. 3,670,902. This application Jan. 21, 1972, Ser. No. 219,886
Int. Cl. B25j 3/00
U.S. Cl. 214—1 PB 5 Claims



A bar unscrambler is provided consisting of feed cradles, shuffle bed modules, and bar feeder units, which are so arranged as to effectively and progressively unscramble or separate bars and the like from a bundle of bars and from each other. The feed cradles are provided with elements having a walking beam type of movement. The shuffle bed modules

comprise mainly walking and fixed beam components, the walking beam components functioning also to activate the aforesaid feed cradle elements. The bar feeders have incorporated therein bar stops effective to temporarily restrain movement of the unscrambled bars, and have also incorporated therein bar selectors designed to individually move the restrained bars to a transfer mechanism or the like, the movements of the bar selectors being synchronized to avoid interference with the bars as they move to the bar stops. Provision is also made for adjusting the position of the bar stops to accommodate bars of different sizes or dimensions.

3,757,965

STACKING OF ARTICLES

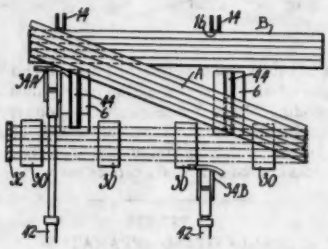
Gilbert Lendrum Renshaw, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, Yorkshire, England

Filed June 16, 1971, Ser. No. 153,540

Claims priority, application Great Britain, July 9, 1970, 33,393/70

Int. Cl. B65g *57/10*

U.S. Cl. 214—6 H **6 Claims**



To form a stack of elongate articles, such as steel bars, successive arrays of the articles are formed and each array in turn is pushed to a stacking location where it is moved over the preceding array with the lengths of the articles inclined to the length of the articles in the preceding array. When the new array has been brought to a position approximately above the previous array, the articles of the new array are brought into substantial parallelism with those of the preceding array.

3,757,966

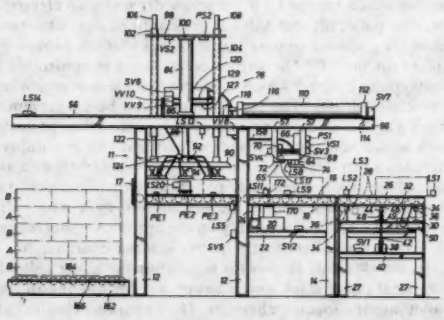
PALLETIZING APPARATUS

Thomas L. Cox, Beaumont, and David G. Rodriguez, Vidor, both of Tex., assignors to J & J Manufacturing Company, Beaumont, Tex.

Filed Mar. 12, 1971, Ser. No. 123,731

Int. Cl. B65g *57/04*

U.S. Cl. 214—6 P **4 Claims**



Apparatus for palletizing elongated generally rectangular articles according to the present invention comprises a frame work disposed adjacent a powered feed conveyor provided for conveying articles serially in linear manner to a shuttle conveyor carried by the frame work. The shuttle conveyor is operative, responsive to a tier pattern being developed and also responsive to the presence of an article, to selectively shift the article laterally from a neutral position to locate selected ones of the articles laterally with respect to the original line of movement thereof. Apparatus is provided to lift and rotate selected ones of the articles and reposition the artcles on a transfer conveyor also carried within the frame work. The articles are transported by the transfer to a tier forming section where they are collected into a tier of selected pattern. The tier is then lifted and transferred to a loading section where they are stacked either upon a pallet or upon a mirror image tier of articles previously stacked onto a pallet.

As the articles are engaged by vacuum heads carried by various article lifting rotating and transporting devices, plastic film from which the container is composed is pierced and the film container is evacuated to conform it to the article configuration and therefore facilitate neat and structurally secure palletizing of the tiers of articles.

3,757,967

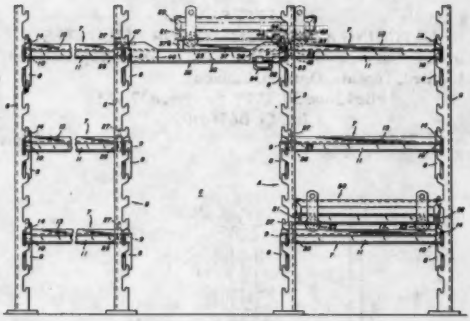
STORAGE RACK WITH DUAL SAFETY BRIDGE

Thomas D. Colbridge, Chalk Hill, Pa., assignor to Rack Engineering Company, Connellsville, Pa.

Filed Oct. 8, 1971, Ser. No. 187,609

Int. Cl. E01b *11/58*

U.S. Cl. 214—16.4 R **11 Claims**



A storage rack installation has two rows of multi-shelf racks with an intervening aisle and at least some of the shelves have track rails extending from front to back on which the wheels of a load-carrying dolly ride. Spring-projected latch pins at the front of each such shelf normally restrain its dolly against forward travel on the shelf. Dual bridge bars are removably rested at one end on a selected shelf at one side of the aisle and at the other end on a shelf across the aisle, each of which has a rail thereon to register with a rail on the selected shelf. Each bar has hooks that straddle the track rail of the selected shelf to align the shelf rail and rail of the bridge bar and each has an extension that depresses the nearby latch pin so that when both bridge bars are in place both latch pins are depressed and the dolly can roll at least part way off the selected shelf onto the bridge bars. A slide bolt on each bridge bar engages the selected shelf to selectively hold the bridge bar against vertical movement.

3,757,968

APPARATUS FOR DISCHARGING BULK MATERIAL FROM STORAGE BUNKERS

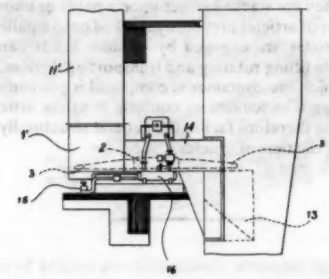
Fritz Teske, Industriestr. 28; Lothar Teske, Industriestr. 30, both of 505 Porz-Westhoven, and Robert Dreismann, Niehler-Kirchweg 139, 5 Cologne-Weidenpesch, all of Germany

Filed Oct. 15, 1970, Ser. No. 81,087

Claims priority, application Germany, Oct. 15, 1969, P 19 51 840.2; Oct. 9, 1970, P 20 49 655.3

Int. Cl. B65g *65/48*

U.S. Cl. 214—17 B 3 Claims



Apparatus for assisting the discharge of bulk material from a bunker to a conveying system has a stationary casing connected to a bunker for sealing the lower end thereof and arranged in communication with a discharge opening of the bunker and with a conveying system. A discharge wheel is arranged in the casing and for rotation in the horizontal plane for feeding material received from the bunker to the conveying system.

3,757,969

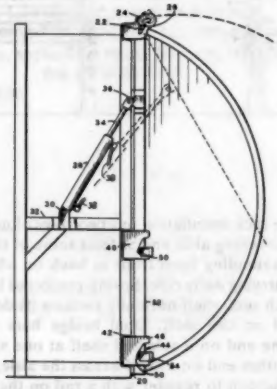
LATCHING ARRANGEMENT FOR TAILGATES

Harold E. Smith, Defiance, Ohio, assignor to Smithpac Canada Limited, Toronto, Ontario, Canada

Filed June 30, 1969, Ser. No. 837,481

Int. Cl. B65f *3/00*

U.S. Cl. 214—83.3 5 Claims



A self-locking, -releasing, and -sealing latching arrangement is provided for a tailgate of a refuse truck. The tailgate is pivotally supported by the body of the truck in a manner to enable transverse movement of the pivot axis. The latching arrangement further includes latching pins and slotted latching plates which, when in cooperating relationship, hold the door closed firmly and tightly. The tailgate is opened and closed by a pair of fluid-operated cylinders which are positioned to first move the tailgate in a direction parallel to the slots of the latching plates in order to move the latching pins out of the slots, and then to effect pivotal movement of the tailgate relative to the body opening.

3,757,970

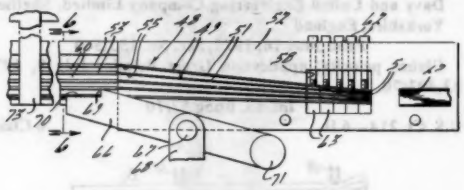
LIFT FORMING DEVICE FOR BOOK PUNCHING MACHINE

Ernst Pfaffle, Neuffen-Wuerttemberg, Germany, assignor to Hans Sickinger Company, Pontiac, Mich.

Filed Apr. 28, 1972, Ser. No. 248,746

Int. Cl. B65g *59/12*

U.S. Cl. 214—8.5 F 9 Claims



Precollated sheets and covers to be punched and bound as a book are placed on a conveyor and moved against a series of blades extending along one edge of the conveyor which separates each book into sections, called lifts. These are individually fed to a punching station and then recollated. The punched books are fed to a rotary carrier and wirebound.

3,757,971

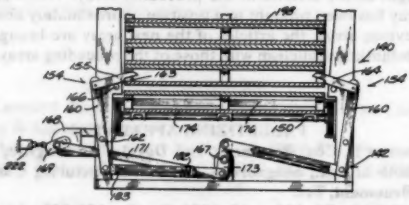
PALLETIZING APPARATUS

William G. Frish, 302 North Ave., Watertown, Wis.

Division of Ser. No. 148,525, June 1, 1971, Pat. No. 3,688,920. This application Aug. 10, 1972, Ser. No. 279,429

Int. Cl. B65g *59/06*

U.S. Cl. 214—8.5 K 4 Claims



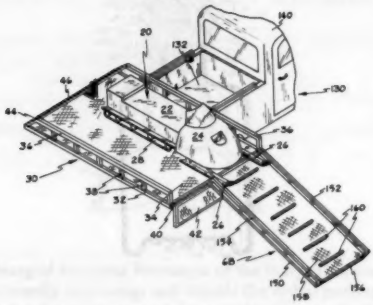
Palletizing apparatus includes a pallet loading chamber with a pallet lift or elevator having a trunnion mounted ball nut assembly which receives a drive screw driven by an electric motor. The pallet lift and ball nut are confined against rotational motion by spaced opposed guide tracks which engage guide rollers on the lift. The drive screw motor is controlled by a digital pulse counter which is coupled to a sensor which senses screw revolutions. The pulse counter can be programmed to move the lift upward or downward a pre-selected distance such as the height of the layer of cartons. The apparatus also includes a retractable apron which is movable between an advanced position over the pallet loading chamber and a retracted position free of the loading bin by a motor driven screw and a ball nut assembly on the apron. A pallet magazine for supplying pallets to the pallet loading chamber has cam operated elevating fingers for separating the lower pallet from a vertical pallet stack and a sweep bar for moving the lower pallet into the loading chamber. The apparatus also includes a conveyor assembly with a pivoted conveyor extension and a cross conveyor at the end of the extension to afford positioning of two loaded pallets for access by fork lift trucks.

3,757,972

VEHICLE CARRIER ASSEMBLY AND METHOD

Harold G. Martin, Twin Falls, Idaho, assignor to TDM Corporation, Burley, Idaho

Filed May 12, 1971, Ser. No. 142,498
Int. Cl. B60p 1/44
U.S. Cl. 214—85 7 Claims



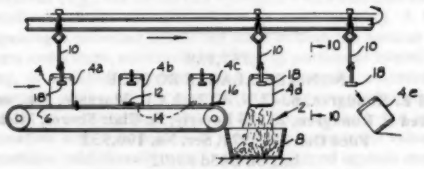
A vehicle carrier including method and apparatus having a supporting frame which is removably connected to a conventional truck, trailer or other suitable transportable bed. A carrier is rotatably connected to the supporting frame so that the carrier is rotatable through as many as 360°. A peripheral barrier exists along both sides and at each end of the carrier, the end barriers being selectively displaceable to provide ingress and egress ways. A ramp is detachably connected to the carrier at the ingress or egress way. In the method of using the carrier assembly, the carrier is oriented either parallel to the transportable bed or projecting transversely away from the transportable bed. The ingress barrier is displaced out of the way and the ramp attached so that a vehicle can drive onto the carrier. When it is desired to remove the vehicle, the carrier may be rotated to either side of the transportable bed or toward the rear end of the bed, the barrier removed and the ramp attached so that the vehicle can be easily driven forwardly off the carrier without manually lifting or backing the vehicle from the carrier.

3,757,973

METHOD OF REMOVING CONTENTS FROM CONTAINER

Gerard L. Lambert, and Charles A. Greenlay, both of Asbestos, Quebec, Canada, assignors to Johns-Manville Corporation, Denver, Colo.

Filed Feb. 22, 1972, Ser. No. 228,001
Int. Cl. B65g 65/00
U.S. Cl. 214—152 7 Claims



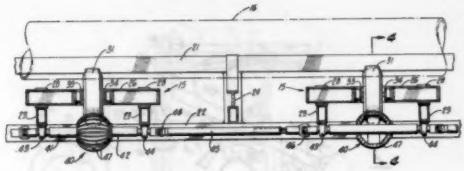
A method is described for opening closed, perforable, flexible containers. The containers are perforated along lines parallel to and transverse to their direction of travel along a conveyancing device. They are then moved to a position overlying a hopper where the weight of the contents causes the container to open along the lines of perforation, thus emptying the contents into the hopper. Apparatus for performing the method is also discribed.

3,757,974

PIPE CONVEYOR APPARATUS

Heinz Steinbach, Reutlingen, Germany, assignor to Institut Dr. Forster, Reutlingen, Germany

Filed May 25, 1972, Ser. No. 256,703
Int. Cl. B65h 51/26
U.S. Cl. 214—339 8 Claims



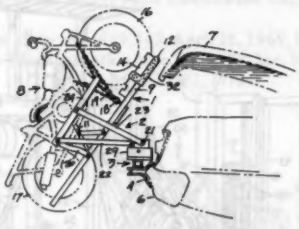
A pair of conveyor support frames which can be easily assembled and disassembled are provided for temporary connection to the entrance and exit ends, respectively, of a transportable test station. A plurality of individual pipe drive units are mounted on the upper frame reaches for guiding and driving the pipe lengthwise through the test station. Each drive unit includes a pair of rubber-tired wheels rotatably mounted in spaced, edge-opposed relation. Rotative power is furnished from a single shaft extending through both frames via a plurality of special friction drive members which individually engage the rubber-tired wheels. Common adjustment means interconnecting the drive units enable varying the attack angle of all the drive wheels as a unit and to the same amount.

3,757,975

CARRIER FRAME FOR AUTOMOBILES

Charles Sneider, 7950 Mirabel Rd., Forestville, Calif.

Filed Jan. 12, 1972, Ser. No. 217,321
Int. Cl. B60m 9/00
U.S. Cl. 214—450 6 Claims



The carrier frame is pivotally supported on brackets mounted on the rear bumper of an automobile so that the frame extends longitudinally over the trunk of the automobile and partially rests upon it. The linkage which supports the carrier frame is so pivoted as to move over center both in upward direction to lift the carrier over the trunk and in downward direction to shift the carrier into an inclined position to the ground at such an angle as to permit the raising of the lid of the trunk and thereby permit access to the trunk without the removal of the article on the carrier. In this form the carrier is a cradle on which a motorcycle is supported and the loaded cradle can be easily pushed over the trunk lid or shifted down to the ground by one hand of the user. Means being provided to fix the cradle in the loaded position over the trunk.

3,757,976

IMPLEMENTS

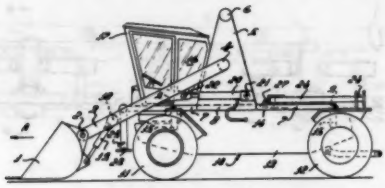
Cornelis van der Lely, 7 Bruschenrain, Zug, Switzerland

Filed Apr. 7, 1970, Ser. No. 26,291

Claims priority, application Netherlands, May 28, 1969, 69,08076

Int. Cl. B60p 1/64

U.S. Cl. 214—515 11 Claims



An agricultural tractor has a load supporting area to receive removable working tool and/or container attachments. The supporting area and the attachments have cooperating lifting devices and flaring parts that orient and retain the attachments during operation. Quick release elements are located on the tractor and attachments to cooperate with the lifting devices and lock the attachments in place as same are lowered on the load area. The lifting devices and quick release elements can be hydraulically operated.

3,757,977

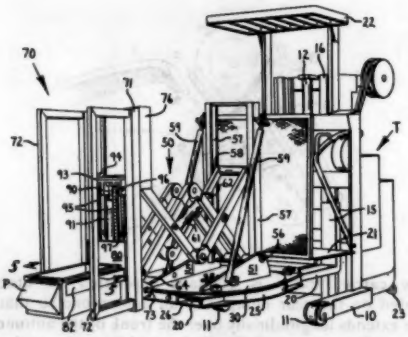
TOTE PAN HANDLER ATTACHMENT FOR LIFT TRUCKS

Ronald A. Brudi, Longview, Wash., and Jerry D. Hamlik, Rainier, Oreg., assignors to Brudi Equipment, Inc., Kelso, Wash.

Filed Sept. 30, 1971, Ser. No. 185,085

Int. Cl. B66f 9/14

U.S. Cl. 214—620 9 Claims



The attachment has a flat base member to support it on the floor when not in use. A pair of fork pockets in the base member receives the arms of a lift truck fork for up and down movement with the lift truck carriage. A turntable on the base member carries an extensible lazy tongs boom for rotation through 190° to reach straight forward, right or left from the truck. A tote pan fork is movable vertically in a vertical guide frame on the boom. The attachment is readily removable to leave the lift truck available for general service.

3,757,978

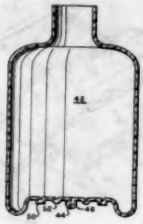
BIAXIALLY ORIENTED BLOW MOLDED ARTICLE WITH RIBS PARALLEL TO SEAM

Dixie E. Gilbert, Orangeburg, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 22, 1971, Ser. No. 210,680

Int. Cl. B65d 1/44

U.S. Cl. 215—1 C 6 Claims



A blow molded hollow article, such as a bottle, formed under conditions giving biaxial orientation, said bottle having ribs in the bottom wall parallel to the seam.

3,757,979

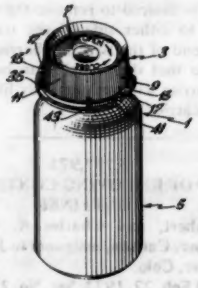
SAFETY CLOSURE-BOTTLE ASSEMBLY

Walter G. Berghahn, Scotch Plains, N.J., assignor to Bristol-Myers Company, New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 218,885

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215—9 7 Claims



A safety closure-bottle assembly comprising a snap-on closure and bottle in which the closure is provided with a tab and the bottle neck with a notched flange which registers with said tab.

3,757,980

NON-REFILLABLE BOTTLE

Alfred E. Rundgren, 6347 N.W. 24th Ct., Margate, Fla., and Alfred C. Rundgren, 23143 Beverly, St. Clair Shores, Mich.

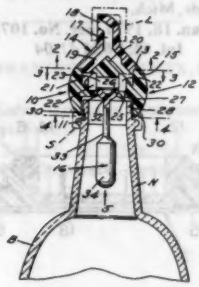
Filed Oct. 20, 1971, Ser. No. 190,932

Int. Cl. B65d 49/02

U.S. Cl. 215—23 8 Claims

A non-refillable bottle closure features a one-piece, pouring body having an axially intermediate valve seat at which it is gravity-sealed; and integral hooks on the body grip it onto the top of the bottle neck, so as to be removed only by breaking. A number of partitioned radial passages beneath the valve seat open to the bottle interior for pouring, and to accommodate an anti-vacuum back air flow after a smooth pouring. Above the valve seat the body has a central axial bore which opens laterally to radial ports, and the ports in turn communicate ax-

ially upwardly with an annular, downwardly flared conical flow chamber of a pour cap fused unitarily to the body, this chamber being centrally defined at its bottom by a tamper-



proof integral top cone formation of the body. This cone radially outwardly overhangs and shields the radial porting of the body, also its valve seat and a weighted, pour-displaceable valve member normally seated on and sealing the latter.

3,757,981

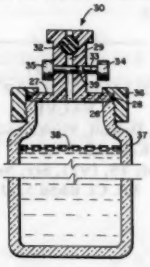
VALVES AND VALVE NEEDLE SYRINGES

Rano J. Harris, Sr., 1945 Carolyn Sue Dr., and Rano J. Harris, Jr., 9880 S. Riveroaks, both of Baton Rouge, La.

Continuation-in-part of Ser. No. 879,232, Nov. 24, 1969, Pat. No. 3,603,471. This application Nov. 18, 1970, Ser. No. 90,603

Int. Cl. B65d *51/00*

U.S. Cl. 215—37 R **10 Claims**



A valve, particularly in combination with a needle syringe, for containing fluids, i.e., liquids or gases, within a confined space. The valve per se includes a body comprising a tubular member (e.g., the barrel of a syringe), which contains an inner resilient tubular member within its axial opening. A lateral opening is provided within the walls of both the tubular members and a stem, containing a cut-away portion or lateral opening, is slidably mounted within the laterally oriented wall opening of the tubular members for opening and closing the valve. In another embodiment, the valve is employed in combination with a container. In this combination, the valve body contains, additionally, a cylindrically shaped septum mounted in series with the stem. The septum, contained within an intersecting passageway, lies across the opening or passageway through the valve body to provide an effective leak-proof seal. The valve can be opened to permit exposure of the septum to the valve exterior. Exposure of the septum in such manner permits withdrawal or injection of fluid from the enclosed container. The valve is also adaptable for use with conduits of various types, and can be employed, e.g., in sample inlet systems as conventionally used in modern analytical instruments.

3,757,982

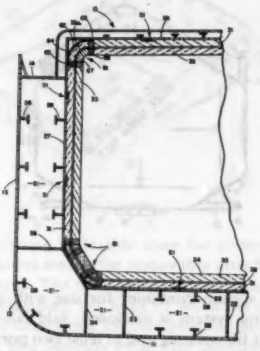
THERMALLY INSULATED CONTAINER

Lionel Isenberg, Downey, and Ernest T. Hillberg, La Habra, both of Calif., assignors to North American Rockwell Corporation, El Segundo, Calif.

Filed June 11, 1971, Ser. No. 152,125

Int. Cl. B65d *25/18*

U.S. Cl. 220—9 C **15 Claims**



An insulated container for transporting low temperature liquids has a strong, rigid outer shell internally lined with first and second layers of polyurethane foam with the second layer directly in contact with the contained liquid. Between the layers of foam may be interposed a composite membrane made of, for example, a combination of one or more metal foil layers, an impervious resinous material, and a plurality of temperature sensing devices spaced throughout the membrane to detect any degradation of the insulation. The interior foam surface is preferably reinforced with a scrim cloth. Means are used over weld seams in the rigid outer shell and at the weld corners to allow flexing without cracking the foam.

3,757,983

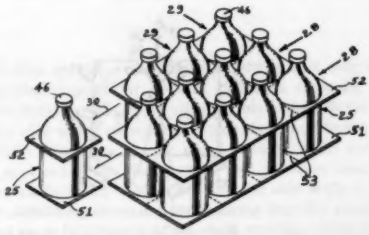
DISPOSABLE INTEGRAL BOTTLE AND STACKING CASES

Donal Edward McCarthy, 9104 Chickawane Ct., Alexandria, Va.

Division of Ser. No. 819,343, April 25, 1969, Pat. No. 3,587,910. This application Mar. 24, 1971, Ser. No. 127,704

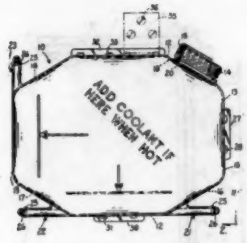
Int. Cl. B65d *21/02, 11/04*

U.S. Cl. 220—23.4 **2 Claims**



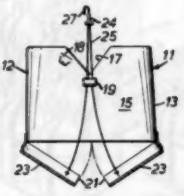
A multiplicity of disposable plastic containers are structurally interconnected in a unitary, severable assemblage to form a package from which the containers can be selectively removed by a simple manual tearing action.

3,757,984
COOLING SYSTEM CONTAINER
Frederic D. Barton, Kaneohe, Hawaii, assignor to Fre-Bar Inc., Holly, Mich.
Filed Aug. 16, 1971, Ser. No. 172,031
Int. Cl. B65d 17/06, 11/10
U.S. Cl. 220—27 3 Claims



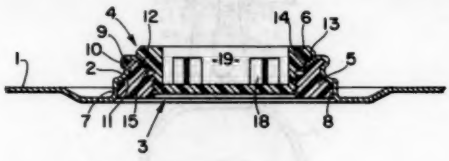
A cooling system container for use with a recovery-type vehicle cooling system is disclosed, said container having a liquid coolant fill opening and at least two port means formed therein, said improvement comprising said port means formed in diagonal corners of said container and said fill opening formed in the corner of said container between said port means, each said port means in the form of a severable hollow pipe which projects from said container, said hollow pipes projecting at right angles to each other so that in each of two vertical positions of said container said fill opening is in an upper corner thereof, one of said pipes is in the other upper corner thereof projecting vertically so as to be capable of serving as an air vent therefor and the other of said pipes is in a lower corner thereof projecting horizontally so as to be capable of serving as a liquid coolant inlet therefor.

3,757,985
HARVESTING CONTAINER PARTICULARLY FOR USE IN PICKING FRUIT
Philip Clarke, The Priory, Eddington, Herne Bay, Kent, England
Filed Oct. 8, 1971, Ser. No. 187,714
Claims priority, application Great Britain, Oct. 21, 1970, 49,878/70; Sept. 3, 1971, 49,878/71
Int. Cl. B65d 51/18
U.S. Cl. 220—29 3 Claims



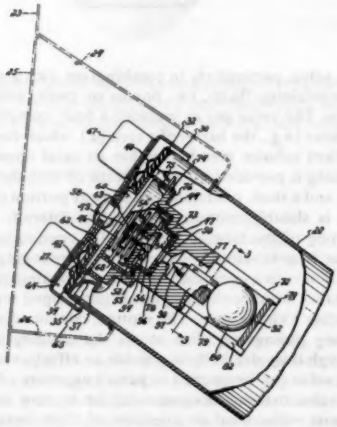
Harvesting container, particularly for use in picking fruit, which has a two-part outwardly opening hinged bottom. The inside and underside of each bottom part is covered with resilient material. The bottom is supported and held closed by a flexible carrying handle when the container is suspended by the handle.

3,757,986
CLOSURE MEMBER FOR METAL CONTAINERS AND METHOD OF ASSEMBLY
John W. Eichinger, Sharpsville, Pa., assignor to Gulf & Western Industrial Products Company, Buckeye Forge Division, Grand Rapids, Mich.
Filed Jan. 18, 1971, Ser. No. 107,165
Int. Cl. B65d 41/04
U.S. Cl. 220—39 R 4 Claims



A closure member for a metal container comprising a plastic sleeve member snapped into an opening in the metal container and a plastic plug removably received within the sleeve member. The sleeve member has a radially projecting shoulder at one end which extends into an annular groove in an embossment on the metal container surrounding the opening therein. During insertion of the sleeve member into the container opening, the radial shoulder is bent radially inwardly by the smaller diameter surface of the embossment adjacent the annular groove therein to permit movement of the radial shoulder therepast, after which the radial shoulder returns to its original shape where it is confined within the annular groove, locking the sleeve member in place. An axially and radially inwardly extending lip on the embossment overlies the radial shoulder on the sleeve member providing a frusto-conical bearing and sealing surface for sealing engagement by a frusto-conical shoulder on the plug when tightened in the sleeve member.

3,757,987
VENT CONTROLLING GAS CAP WITH SHUT-OFF VALVE
Charles J. Marshall, Detroit, Mich., assignor to American Motors Corporation, Kenosha, Wis.
Filed July 15, 1971, Ser. No. 162,805
Int. Cl. B65d 51/16
U.S. Cl. 220—44 R 4 Claims



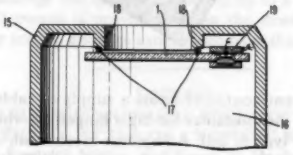
A valve associated and assembled with a vent controlling arrangement in the closure cap of a fuel storage tank in a motor

vehicle. The valve having a weighted member responsive to the influence of gravity to effect the opening and closing of the valve and accordingly the communication between the tank and vent controlling arrangement, the closing being when the tank is inverted to prevent fuel spillage.

3,757,988
SHATTERING FRANGIBLE OBJECTS, PARTICULARLY PLATES

Heinz Kunert, Koln, Germany, assignor to Saint-Gobain, Neuilly-sur-Seine, France

Filed June 10, 1971, Ser. No. 151,850
Claims priority, application Germany, June 10, 1970, P 20 28 350.1
Int. Cl. B65d *43/02, 25/00*
U.S. Cl. 220—47 **20 Claims**

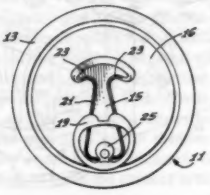


Wall means comprising a pane of tempered glass transpierced by a hole, an explosive device comprising oppositely disposed hollow bullets sharing a common explosive charge disposed in the hole, means to direct the bullets against the wall of the hole, means to fire the charge, and closure means sealing both faces of the hole.

3,757,989
CAN END WITH INSEPARABLE TEAR STRIP

Omar L. Brown, Kettering, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio

Filed Dec. 31, 1970, Ser. No. 103,255
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **17 Claims**

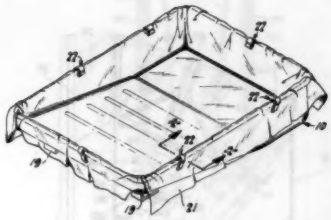


A can end in which the tear strip is defined by a non-continuous score which is formed so that the tear strip is prevented from being completely removed from the can ends. Coined formations are positioned in the area about the score line to prevent the formation of sharp edges against which a user could cut himself. In one embodiment of the invention, the end wall is coined so as to form a score ledge situated beneath the horizontal plane of the end wall and the tear strip is further coined or formed to a position beneath the horizontal plane of the score ledge. When a score is formed in the ledge, the tear strip is coined slightly further away from the horizontal plane of the ledge to absorb the metal flowing away from the score. In another embodiment, ridges are coined into the end wall and the tear strip on opposite sides of the legs of the score to accomplish the same result.

3,757,990
DISPOSABLE FLEXIBLE LINER FOR PAINT TRAYS

Wallace R. Buth, 33 Curtis St., San Francisco, Calif.

Filed July 21, 1970, Ser. No. 56,922
Int. Cl. B65d *25/16;* **A44b** *21/00;* **B65b** *67/12*
U.S. Cl. 220—63 R **2 Claims**

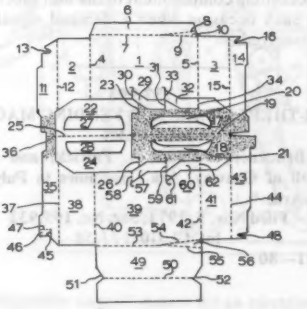


Assembly including a flexible liner for protecting a paint tray and mechanical means for removably attaching the flexible liner to the tray. The mechanical means includes a plurality of clips for clamping the liner to the walls of the tray, a resilient band or drawstring for clamping the liner to the outside of the tray, and adhesive means for attaching the liner to the tray. A disposable bag is provided for disposing of used liners.

3,757,991
ARTICLE CARRIER

James T. Stout, Doraville, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed May 22, 1972, Ser. No. 255,391
Int. Cl. B65d *75/00*
U.S. Cl. 220—113 **5 Claims**

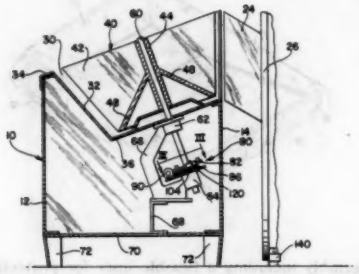


A basket-style article arrier having a bottom wall, side walls foldably joined along their bottom edges to opposite side edges of the bottom wall, end walls foldably joined to the end edges of the side walls, riser panels foldably joined to the end walls medially thereof, a handle panel secured at its ends to the upper portions of the riser panels, and partition structure interconnected between the handle and the side walls is provided with stabilizing structure for insuring that the carrier is squarely set up to facilitate loading, such structure including a fold line which is bifurcated at one end and which interconnects the bottom edge of each side wall with the corresponding side edge of the bottom wall together with a specially constructed locking notch and an associated closure flap formed in the riser panels at the end of the carrier opposite from the bifurcated portion of the fold line between the side walls and the bottom wall.

3,757,992
SUPPLY BOBBIN DELIVERY MECHANISM

David G. Cruickshank, North Kingstown, and Raymond V. Tata, Warwick, both of R.I., assignors to Leesona Corporation, Warwick, R.I.

Filed July 24, 1972, Ser. No. 274,745
Int. Cl. B65h 43/02
U.S. Cl. 221—13 10 Claims

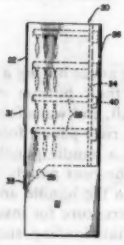


Supply bobbin delivery mechanism including a rotatable divider mounted on an axis within a tub-like bobbin container is described. The divider includes a plurality of separators, the space between each adjoining pair of separators forming a bobbin receiving compartment. The divider is driven by an indexing mechanism having at least as many positions as there are separators thereon. The container is mounted in an inclined plane and has an opening at the high point along its periphery. The container is charged with bobbins by automatically or manually filling each space or compartment. On demand from the user mechanism the divider is indexed one position at a time. Consequently, bobbins in each compartment are moved sequentially into alignment with the opening in the container whereupon these bobbins slide downwardly under the force of gravity to the user mechanism. Indexing of the divider to thereby deliver a fresh quantity of bobbins from the next succeeding compartment to the user mechanism is repeated on each occasion when a demand signal for supply bobbins is received.

3,757,993
ANTI-THEFT MEANS FOR VENDING MACHINE MODULES

James V. Bruckner; William A. Patrick, and Thomas O. Yingst, all of Conway, Ark., assignors to Polyvend, Inc., Conway, Ark.

Filed Nov. 5, 1971, Ser. No. 195,932
Int. Cl. G07f 11/58
U.S. Cl. 221—80 8 Claims

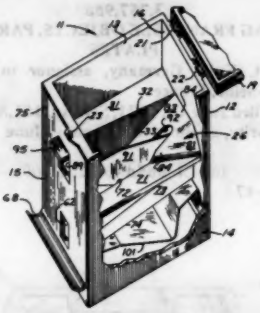


A replaceable vending machine merchandise dispensing module having endless-chain-mounted merchandise supporting means and means associated therewith for preventing improper dislodging of the merchandise and for ensuring proper discharge therefrom.

3,757,994
PILL DISPENSER

Paul B. S. Skoetsch, 1428 N. Madison, Stockton, Calif.

Filed Apr. 6, 1972, Ser. No. 241,685
Int. Cl. B65h 7/00
U.S. Cl. 221—202 9 Claims

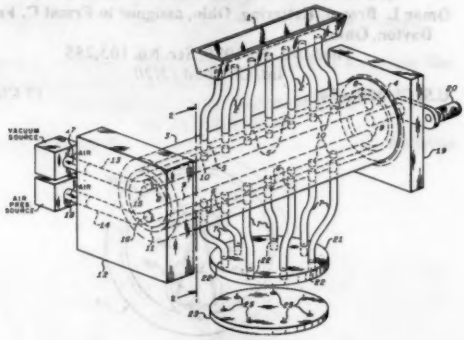


A transparent container holds a supply of tablets, such as vitamin pills, the container having a hinged lid which is color-coded to the type of pill. An ejector mechanism on the container is manually operated and ejects one pill at a time. By combining several units, a full spectrum of pill types is made readily available.

3,757,995
SMALL PARTICLE DISPENSER

James B. Armstrong, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.

Filed May 20, 1971, Ser. No. 145,384
Int. Cl. B65g 59/06
U.S. Cl. 221—211 2 Claims



A rotary pin dispenser utilizes vacuum to draw a predetermined number of pins from pin supply tubes into a cylindrical barrel. The barrel is rotated to a second position and air pressure is utilized to expel the pins into delivery tubes.

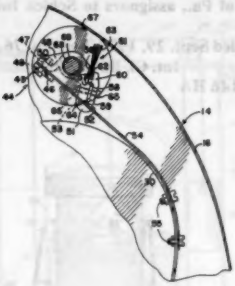
3,757,996
SEED CUT-OFF FOR PLANTERS

Darlo E. Lienemann, Darien, and Arthur S. Datta, Willow Springs, both of Ill., assignors to International Harvester Company, Chicago, N.Y.

Filed Aug. 9, 1971, Ser. No. 169,960
Int. Cl. B65h 3/08
U.S. Cl. 221—211 8 Claims

A seed dispenser for a pneumatic planter of the type wherein seed is fed to the interior of a revolving seed selector

drum having peripheral seed-receiving openings. The interior of the drum is supplied with air under pressure to attract seeds



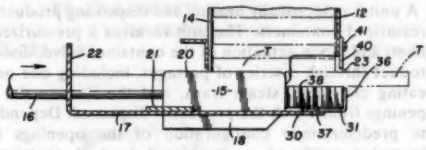
to the openings and carry them upwardly to a discharge area. A cut-off means is provided within the drum ahead of the discharge area to dislodge excess seed from the openings.

3,757,997

VARIABLE THICKNESS FOR RECIPROCABLE-TYPE ARTICLE EJECTOR OF A VENDING MACHINE

Clarence Fredrick Millies, and Loren V. Hughes, both of Cincinnati, Ohio, assignors to Unlimited Invested Corporation, Cincinnati, Ohio

Filed Oct. 15, 1971, Ser. No. 189,707
Int. Cl. B65g *59/06*
U.S. Cl. 221—241 **9 Claims**



An adaptor attachment for use in connection with the reciprocable-type ejector of an article vending machine, such as a cigarette package vending machine. It consists of a filler arrangement cooperating with the ejector block upon which the column of articles normally rests and which, upon the retraction stroke of the block, is located underneath and supports the lowermost article in the magazine, preparatory to the advancing or dispensing stroke. The filler is adapted to make it possible for the ejector to eject thinner articles, the vertical extent of the filler plus that of the thinner article it supports being substantially equal to the thickness of the ejector block which was designed to eject the thicker articles.

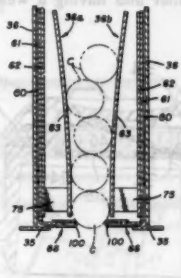
3,757,998

ADAPTOR SYSTEM FOR A VENDING MACHINE TO ADAPT IT TO THE VENDING OF VARIOUS SIZE ARTICLES

Clarence Frederick Millies, and Loren V. Hughes, both of 727 Dixmyth, 605 Tower West, Cincinnati, Ohio

Filed Dec. 8, 1971, Ser. No. 205,890
Int. Cl. G07f *11/16*
U.S. Cl. 221—242 **39 Claims**

An adaptor system for use on vending machines, such as a cigarette vending machine, of the type in which the articles to be vended are supported as a column of superimposed articles with the lowermost article resting on a support at a predetermined level or ejector plane where it is subjected to an ejector that will move the article off that plane in an ejecting or dispensing stroke. The adapter system includes means for adjusting the support or ejector plane to different levels so as to adapt the machine to the dispensing of articles of different thicknesses. It also includes means for changing the width and length of the magazine to adapt the machine to the dispensing



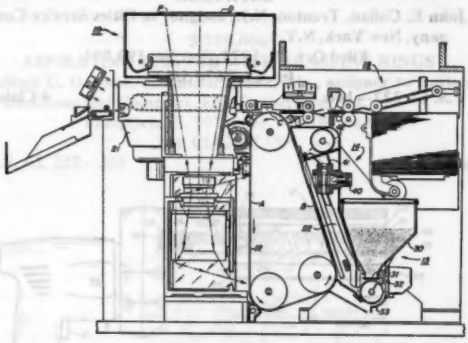
of articles of different lengths and widths. It further includes means for making compensating adjustments of the ejector to adapt it to the different thicknesses, width, and lengths of the articles to be dispensed.

3,757,999

AUTOMATIC DEVELOPABILITY CONTROL SYSTEM FOR ELECTROSTATIC RECORDING APPARATUS

John Maksymiak, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 867,208, Oct. 17, 1969, Pat. No. 3,727,065. This application Nov. 3, 1972, Ser. No. 303,667
Int. Cl. G01n *21/26*
U.S. Cl. 222—57 **7 Claims**



A developability control system for an electrostatic recording apparatuin which a sensor including two parallel spaced NESA apparatus in plates through which developer material flows are connected in a circuit wherein each is electrically charged alternately for equal periods of time. While each plate is charged, it is adapted to attract toner. A light source on one side of the two plates and a photocell on the other side "senses" the sum toner deposit on the two plates at all times thereby effecting a steady state control signal.

3,758,000

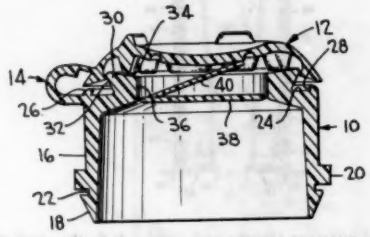
SAFETY CLOSURE FOR CONTAINERS

Frank J. Mack, Miamiville, Ohio, assignor to The Drackett Company, Cincinnati, Ohio

Filed May 14, 1971, Ser. No. 143,351
Int. Cl. B65d *43/10*
U.S. Cl. 222—143 **14 Claims**

A safety closure including a base member having a spout, an annular shoulder around the spout, and a peripheral ridge

protruding from the shoulder, a cover member having a domed crown with a skirt depending therefrom, a plurality of stacking bosses protruding from the outer surface of the crown and a segmented ring protruding from the inner surface of the crown, and a hinge interconnecting the base member and the cover member and having a weakened portion of



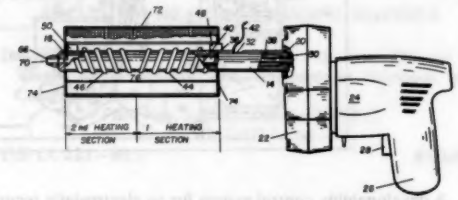
reduced cross section adjacent the cover member, the cover member being adapted to be disposed on the base member with the segmented ring engaging a top surface of the spout and a peripheral bottom edge of the skirt captured by the ridge whereby the cover member can be removed from the base member only by depressing the crown to free the peripheral bottom edge.

3,758,001

EXTRUDER

John E. Callan, Trenton, N.J., assignor to Cities Service Company, New York, N.Y.

Filed Oct. 29, 1971, Ser. No. 193,991
Int. Cl. B67d 5/62
U.S. Cl. 222—146 **4 Claims**



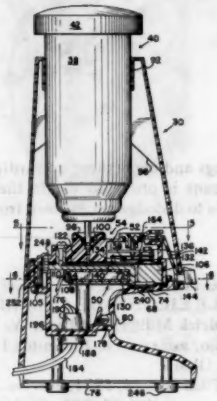
A polymer extruder having heating means which is thermostatically controlled for regulated heating of the extruder barrel and, hence, the material being extruded. In preferred embodiments the extruder barrel is fitted with two longitudinally spaced-apart electric heating elements, each of which is independently controlled with separate thermostats attached to the barrel in the vicinity of the element which it controls. The first heating element is located near the feed inlet of the extruder, and the second near the extrusion orifice. The first element provides high heat input for rapid softening of the polymeric feed. The other element provides additional heat input for extrusion of the polymeric material at a constant, preselected temperature. The invention is especially applicable to hand-held extruders which are operated intermittently for extruding hot tapes during the weather sealing of structural joints.

3,758,002

PRODUCT DISPENSER AND HEATER

Edward J. Doyle, Hatboro, and Richard S. Bagwell, Jr., Lancaster, both of Pa., assignors to Schick Incorporated, Lancaster, Pa.

Filed Sept. 29, 1970, Ser. No. 76,454
Int. Cl. B67d 5/62
U.S. Cl. 222—146 HA **16 Claims**



A unit for electrically heating and dispensing products from pressurized containers. The unit receives a pressurized container, and, upon actuation of the container valve, directs the product through a series of passages, including one or more heating chambers, steam traps, and the like, to the outlet openings from which the product is dispensed. Depending on the predetermined configuration of the openings in the dispensing nozzle of an associated product container, the dispenser is adapted to direct the product into one or more heating chambers alternatively, or into two or more chambers simultaneously. Each heating chamber is formed in part by an exterior surface of a relatively massive heat sink unit having an electrical resistance heating element associated therewith and controlled by an adjustable thermostat. Electric current is supplied to the element and the control through a connector which affords mechanical strength, electrical insulation and which provides a water-tight connection. The passages directing the product to one or more of the heat exchangers are located within a cover element closely overlying the heat sink and the thermostat. Since typical products dispensed by the novel unit are highly viscous, the containers thereof should be stored in the inverted position and accordingly, containers are constructed so as to facilitate inverted storage and to prevent unintentional upright storage.

3,758,003

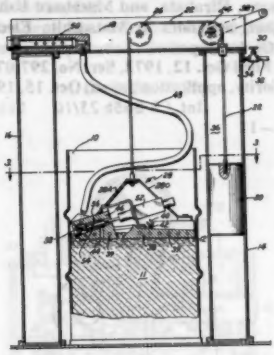
HOT MELT LIQUEFYING AND PUMPING MECHANISM

Wilbert G. Kautz, and Dale F. German, both of Bryan, Ohio, assignors to The Aro Corporation, Bryan, Ohio

Filed Dec. 20, 1971, Ser. No. 209,671
Int. Cl. B67d 5/62; F16k 49/00
U.S. Cl. 222—146 R **5 Claims**

A mechanism for melting and discharging hot melt material from a barrel includes a hot plate which fits through the top of

the barrel and melts the hot melt material adjacent the bottom side of the plate. A pump operates to draw the melted hot melt



material from the region between the plate and the unmelted material for discharge through a flexible hose.

3,758,004

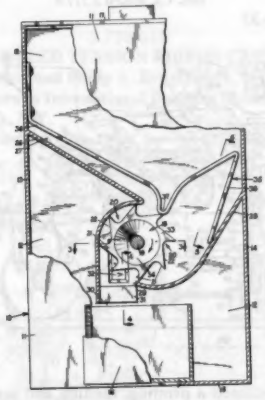
DIAL-CONTROLLED DISPENSER FOR POWDERED OR PARTICULAR MATERIAL

Lawrence E. Garrett, Rt. 1, Box 676, and Luther B. Garrett, 824 Miller Ave., both of Dallas, Oreg.

Filed Feb. 28, 1972, Ser. No. 229,739

Int. Cl. B65g *29/00*

U.S. Cl. 222—181 **3 Claims**



A wheel on a horizontal axis in a dispensing container has a continuous series of scoops in its periphery which produce the discharge of material from the dispenser. The wheel is rotated and controlled by an external finger-operated dial. Clogging of the wheel is prevented by a recess in each of the adjacent walls of the container facing the lower portion of the wheel and by decreasing thickness of the wheel at its center portion. Close tolerance of the peripheral walls and lips of the wheel with the discharging mouth of the dispenser enable desired amounts of material to be accurately dispersed. For powdered material an agitator in the container prevents caking.

3,758,005

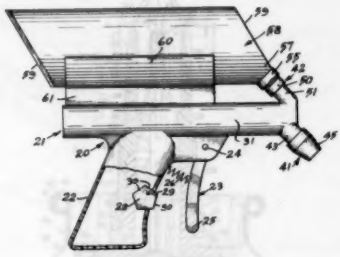
DISPENSING SYSTEM

William C. Christine, Catasaqua, and William E. R. Watt, Barto, both of Pa., assignors to Inpaco, Allentown, Pa.

Filed Dec. 7, 1971, Ser. No. 205,692

Int. Cl. G01f *1/06*

U.S. Cl. 222—309 **1 Claim**



A dispensing system which is adapted to discharge controlled quantities of a substance such as a condiment. The dispenser includes a forward chamber housing a trigger controlled piston and inlet and outlet means to the chamber being regulated by spring pressed check valves. An arcuate cradle and fitment are provided for mounting a flexible disposable puch on the dispenser.

3,758,006

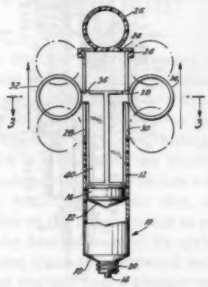
ASPIRATING SYRINGE WITH GRASPING RINGS

Leland C. Gravlee, Mountain Brook, Ala., assignor to Becton Dickinson and Company, East Rutherford, N.J.

Filed Oct. 15, 1971, Ser. No. 189,612

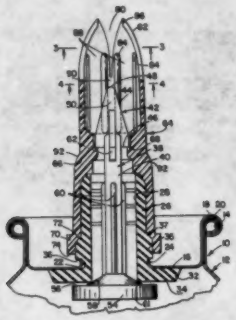
Int. Cl. G01f *1/06*

U.S. Cl. 222—323 **2 Claims**



A hypodermic syringe barrel has a delivery tip at one end and an axially movable plunger spaced within the barrel movable toward and away from the delivery tip. A grasping ring is connected to the barrel at the opposite end of the barrel from the delivery tip. A pair of axially movable grasping rings are oppositely spaced along the sides of the barrel. Each of the movable rings is connected to the plunger. The movable rings fit through guide slots in the barrel. When the movable rings are conveyed toward the end-mounted grasping ring, while the grasping ring is braced against motion, the syringe is aspirated.

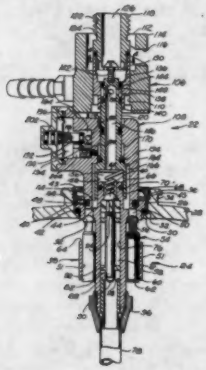
3,758,007
DISPENSER VALVE STRUCTURE
Joseph L. Rosen, Chicago, Ill., assignor to Super Whip Valve Mfg. Co., Chicago, Ill.
Filed Mar. 19, 1971, Ser. No. 126,187
Int. Cl. B65d 83/14
U.S. Cl. 222—394 5 Claims



A dispenser valve structure for use with containers dispensing liquids under pressure, in which the nozzle is provided with spaced guide ribs which form guideways therebetween for guiding the material to be discharged in a substantially straight stream and avoid spattering.

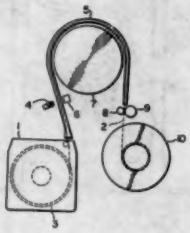
This invention is an improvement of the type of valve structure shown in my U.S. Pat. No. 3,300,105.

3,758,008
TAPPING ASSEMBLY FOR BEER KEGS AND THE LIKE
Mack S. Johnston, 26 Hitching Post Dr., Rolling Hills, Calif.
Filed Oct. 14, 1971, Ser. No. 189,281
Int. Cl. B65d 83/00
U.S. Cl. 222—400.7 19 Claims



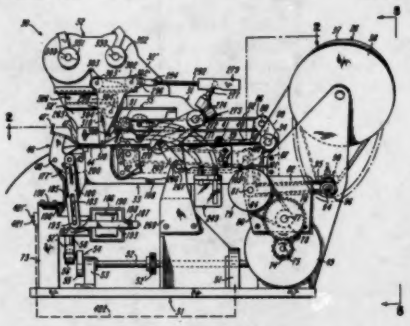
A keg adapter for beer kegs and the like with gas and liquid passageways containing normally closed valves, which when opened permit compressed gas to be admitted to the keg and beer to be withdrawn therefrom, said valves being biased toward the closed position by actuators which contain permanent magnets. A tapper is connected to a source of compressed gas and to a beer faucet and contains a tap rod, which, when manually actuated, seals the tapper to the adapter and interconnects the gas source and the faucet with the interior of the keg.

3,758,009
MAGNETIC RECORDING AND REPRODUCTING APPARATUS
Michinori Nagahiro, Nishinomiya; Toshiomi Yabu, Kyoto; Hiroo Hosono, Hirakata, and Masaharu Ushihara, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 12, 1972, Ser. No. 297,073
Claims priority, application Japan, Oct. 15, 1971, 46/81996
Int. Cl. B65h 25/10
U.S. Cl. 226—11 7 Claims



A video tape recorder of the one reel cartridge type using a magnetic tape having a transparent leader tape and a transparent trailer tape connected to the leading and trailing ends thereof respectively. A transparent tape portion detector is disposed adjacent to the tape path for detecting misloading of the leader tape portion so that the magnetic tape can be automatically stopped or rewound in the event of misloading.

3,758,010
PRINTING APPARATUS
Paul H. Hamisch, Jr., Franklin, and Robert M. Pabodie, Dayton, both of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio
Filed Jan. 6, 1972, Ser. No. 215,852
Int. Cl. B65h 23/18
U.S. Cl. 226—33 13 Claims



There is disclosed a printing, feeding and severing method and apparatus for carrying out the method. The apparatus includes a print head assembly and a platen assembly movable relatively toward and away from each other into and out of printing cooperation, mechanism for inking the print head assembly, mechanism for feeding a web of record members to between the print head assembly and the platen assembly, the web being in roll form and there being means to assist the gradual unwinding of the roll with gradual paying out of web material from the roll to the feeding mechanism, an idler contacting the web and disposed at a slight angle to the direction of feed of the web to cause the web to follow a feed edge, record severing means disposed downstream of the print head assembly and the platen assembly, and a modular support assembly of a print head of the print head assembly.

3,758,011

APPARATUS FOR OSCILLATING DRIVE OF SHAFTS AND USE OF THE AFORESAID APPARATUS

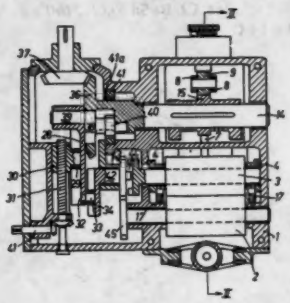
August Thomas Portmann, Arbon, Switzerland, assignor to Bruderer AG, Arbon, CH

Filed Sept. 26, 1972, Ser. No. 292,355

Claims priority, application Switzerland, Oct. 1, 1971, 14370/71

Int. Cl. B65h *17/26*

U.S. Cl. 226—142 6 Claims



An apparatus for the oscillating drive of shafts, comprising a lever pivotable about a pivot axis. The lever is connected with a drive element moving to-and-fro with a translatory movement between two terminal positions and possesses a rotatably secured sliding body member which is guided in a slide or guide track provided at a rocker arm connected with the shaft to be driven.

3,758,012

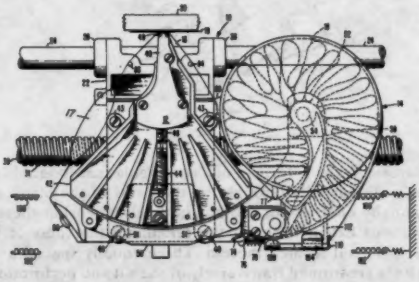
CONTROLLED TENSION RIBBON CASSETTE

Gilbert B. Bonner, and Philip A. Brumbaugh, both of Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,684

Int. Cl. B65h *17/20*

U.S. Cl. 226—168 6 Claims



An endless ribbon for a wire matrix printer is pulled past the print head as the print head moves along the print line by a feed roll located at the entrance to a cassette which has an elongated gradually-expanding storage chamber which readily permits random folding of the ribbon in the chamber resulting in reduced ribbon tension and more uniform ribbon feed.

3,758,013

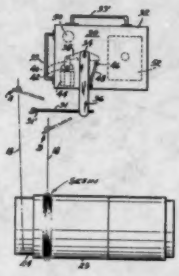
SKEIN TIMER-DEVICE

Charles William Johnson, Waterville, Ohio, assignor to Johns-Manville Corporation, New York, N.Y.

Filed Nov. 18, 1971, Ser. No. 199,950

Int. Cl. B65h *23/02*

U.S. Cl. 226—199 5 Claims



This is a device having strand guiding means at one position for guiding attenuated continuous glass fibers onto a rotatable mandrel at one location, and means for selectively moving the guiding means to a second position only for a predetermined period of time for guiding fibers onto the rotatable mandrel at another location for collecting thereon a skein of fibers.

3,758,014

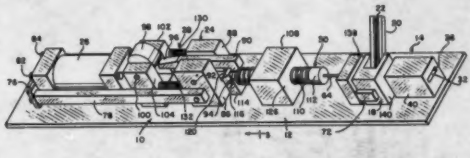
AUTOMATIC PIN INJECTOR

Robert L. Herr, Manheim, Pa., assignor to Rimar Manufacturing, Inc., Manheim, Pa.

Filed May 30, 1972, Ser. No. 257,876

Int. Cl. B27f *7/02*

U.S. Cl. 227—7 12 Claims



An automatic pin injector for positioning pins within an axial bore of a grill bar including a spring biased plunger axially reciprocal from an initial position to a driving position, a forward pin chamber section which receives the end of a grill bar therein, the pin chamber section including an intake slot and pin pick up which is initiated by the insertion of the grill bar within the intake slot and a micro switch which trips upon seating the grill bar within the intake slot, an air cylinder responsive to operation of the micro switch to pull the plunger rearwardly against the bias of one of its springs, a plunger release which functions upon the rearward movement of the plunger to release the plunger and a plunger spring to propel the plunger forwardly to drive a pin into the axial bore upon function of the plunger release.

3,758,015

LAST STITCH AND TIE STITCH PLACING SYSTEM

Stephen Stanton, Baltimore, Md., assignor to Precision Industries, Inc., Baltimore, Md.

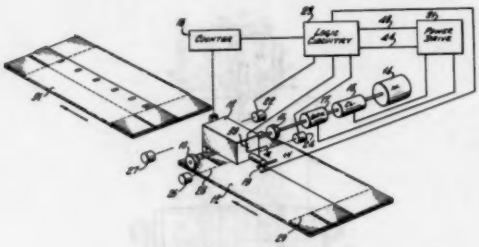
Filed Jan. 5, 1972, Ser. No. 215,604

Int. Cl. B27f *7/06*

U.S. Cl. 227—7 26 Claims

A box stitching machine is disclosed which includes a stitching head and a set of pull rollers for intermittently moving a box to be stitched past the stitching head. An operating

motor drives a shaft which is connected to the pull rollers through a clutch brake combination. Logic circuitry which is selectively responsive to (1) a pair of photocells for determining the position of a box to be stitched and (2) a counter which counts the number of stitches put into a box, drives a power circuit for controlling the brake clutch combination.

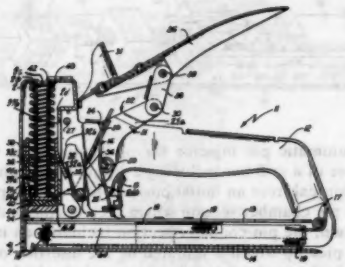


Details of the logic circuitry are also disclosed showing how the brake clutch combination can be controlled to provide (1) a predetermined number of stitches in a box, (2) automatically place a last stitch at a predetermined position in the box without regard to the number of stitches placed therein and (3) provide tie stitches at leading and trailing ends of a stitched box.

3,758,016
TACKER

Nathaniel M. Olney, New York, N.Y.; Antoon M. Hurkmans, New Milford, Conn.; Edward E. Barrett, Massapequa Park, and Martin J. Leff, New York, both of N.Y., assignors to Swingline Inc., Long Island City, N.Y.

Filed Oct. 18, 1971, Ser. No. 190,155
Int. Cl. B25c *5/10*
U.S. Cl. 227—132 **5 Claims**



A gun-type manually operable tool for firing a fastening element such as a staple into a work piece is disclosed. The tool comprises a driving means including a spring loaded ram means movable through an arming and firing stroke into contact with a staple situated at the driving station of the tool. A movable means engageable with the ram means operates to move the ram means through the arming stroke and release means is provided for automatically effecting disengagement between the ram means and movable means at the completion of the arming stroke permitting movement of the ram means through the firing stroke. The tool is actuated by depressing a pivotally mounted actuating handle which is responsively connected to the movable means by a linkage means. The movable means includes a ram lifting member which is pivotally mounted on one link of the linkage means and the release means includes a pin element disposed in the path of movement of the ram lifting member; the pin acting as a cam to pivot the ram lifting element out of engagement with the ram at the completion of the arming stroke. Advantageously, the pin element also serves to pivotally mount the actuating handle. Also, the tool includes a magazine means for incrementally feeding fastening elements to the driving station and a window in the external housing of the tool having visual measuring means for determining the length of the fastening elements loaded in the tool.

3,758,017
RIGID PANEL CONTAINER

Donald R. Ross, 126 California Ave., Freeport, N.Y.

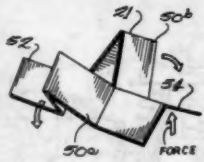
Filed Sept. 24, 1971, Ser. No. 183,571
Int. Cl. B65d *5/32, 5/60*
U.S. Cl. 229—14 C **1 Claim**

A readily assembled and disassembled container fabricated of rigid panels to provide maximum protection to the transported product, in which cooperating tabs and notches are relied on solely to assemble the panels, i.e., no nails, bolts, screws or the like, nor is assembly facilitated by any appreciable bending of the rigid panels. Instead, an angular orientation of the tabs and notches, which orientation will not often occur inadvertently, is made a requirement for panel assembly and disassembly.

3,758,018
CARTON DIVIDER

Richard A. Black, Calumet City, Ill., assignor to Bell Fibre Products Corporation, Marion, Ind.

Filed Dec. 23, 1971, Ser. No. 211,331
Int. Cl. B65d *5/48*
U.S. Cl. 229—15 **3 Claims**

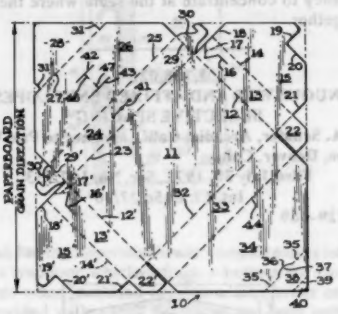


A carton divider is formed of a rectangular cardboard blank having a slit partially through the thickness of the blank and substantially centrally of the longitudinal dimension thereof. Perforations extend through the remaining thickness of the blank in the slit formed therein. Three equally spaced apart score lines are formed transversely of the slit and perforations. Upon folding the blank along the score lines and then parting the blank along the perforations in the region of the center score line by pulling on both sides of the perforated section, the cardboard blank is then folded into a cross-shaped divider unit. The apparatus for forming the same consists of a conveyor with a single cutting and perforating wheel which forms a slit and perforations in a single operation.

3,758,019
MULTI-USE GARMENT BOX

Glenn E. Struble, Fairfield, Ohio, assignor to Diamond International Corporation, New York, N.Y.

Filed Dec. 6, 1971, Ser. No. 205,127
Int. Cl. B65d 85/18, 5/46
U.S. Cl. 229—16 R 11 Claims

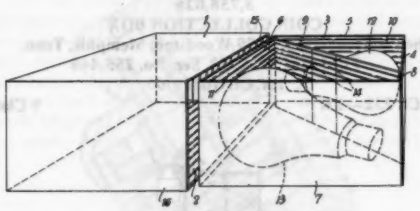


A one-piece multi-use garment box which lends itself to being carried in a completely closed condition or to being hung on a rack in a semi-closed condition, said garment box being formed from a blank having a plurality of foldable panels and flaps which cross the grain of said blank. The assembled garment box comprises a back panel, a pair of side panels, a bottom panel, and foldable flaps extending from each of said panels adapted to form a four-piece front wall section with locking members.

3,758,020
PACK FOR ARTICLES

Ronald Frederick George Childs, Bracknell, Bershire, and Richard Wolfgang Emil Mosse, London, N.W. 8, both of England, assignors to Corrugated Products Limited, Bracknell, Berkshire, England

Filed Oct. 19, 1971, Ser. No. 190,608
Int. Cl. B65d 5/08
U.S. Cl. 229—39 B 5 Claims

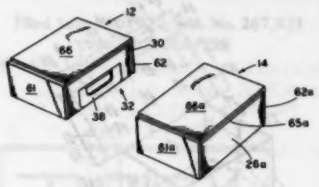


A pack for two electric lamp bulbs includes a covering sleeve of oblong rectangular cross-section, and a containing sleeve of rectangular cross-section. An oblique partition extending across the rectangular containing sleeve between two opposite walls thereof divides its interior into two four-sided compartments open at both ends and receiving the bulbs. The bulbs are fitted into the compartments, via one end of the container sleeve, to lie side-by-side and head-to-tail. The partition, a gluing strip, and the containing sleeve are a folded single piece of material, the partition not having been cut from the containing sleeve. The latter is fittable into the covering sleeve, with the partition in position, by sliding in the containing sleeve with one of the aforesaid opposite walls leading, such that the other two walls lie face-to-face with the respective narrower covering sleeve walls.

3,758,021
DIVISIBLE CARTON

Ronald H. Gordon-Ross, Downers Grove, Ill., assignor to Stone Container Corporation, Chicago, Ill.

Filed Feb. 28, 1972, Ser. No. 229,919
Int. Cl. B65d 5/54
U.S. Cl. 229—51 DB 26 Claims



The divisible carton is made from a single unitary blank of paperboard material which has a plurality of score lines, slits, cuts and handle formations therein. The carton has at least one continuous top wall, a continuous bottom wall, continuous side walls, continuous end walls and at least two juxtaposed internal walls. The divisible carton has a line of perforations extending around the carton midway between the end walls thereof and in the bottom wall, the side walls and the top wall. When the divisible carton is separated at the line of perforations to form two smaller cartons, the internal walls form respective end walls of the two separate and smaller cartons. Preferably, a handle formation is formed in each of the internal walls and each handle formation is completely enclosed within the divisible carton and is exposed only when the divisible carton is separated at the line of perforations into two smaller cartons. The handle formations can then be manipulated to form handles for easy carrying of each smaller carton.

3,758,022
RE-CLOSING ARRANGEMENT FOR PACKAGES OF CARDBOARD

Od Wikar Christensson, Bromma near Stockholm, Sweden, assignor to Christenssons Maskiner & Patenter Aktiebolag, Stockholm, Sweden

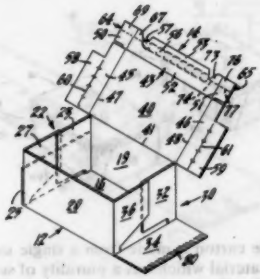
Filed Feb. 2, 1970, Ser. No. 111,900
Int. Cl. B65d 5/66
U.S. Cl. 229—44 R 4 Claims

A cardboard package having a recloseable flat plastic lid. The upper edge of one side of the package is formed with a hinged flap for attachment of a plastic lid. The lid is flat and formed with a frame for embracing the cardboard sides. A depression in the lid forms, with a portion of the frame, a groove for engaging the flaps to secure the lid thereto. A further depression forms a further groove for engaging an upper edge of the cardboard package to secure the lid in a closed position.

3,758,023
CARTON

George LeRoy Meyers, Menasha, Wis., assignor to American Can Company, Greenwich, Conn.

Filed Feb. 22, 1971, Ser. No. 117,262
Int. Cl. B65d
U.S. Cl. 229—51 TC 11 Claims



A blank of material is provided that forms a carton when erected which includes a receptacle and a hingedly connected cover of the hooded type that telescopes the upper portion of the receptacle. The carton cover when set up has a top panel with opposed end panels, and end panel extensions connected by tear lines to the cover end panels, respectively, and which are folded along the tear lines back upon the cover end panels and adhesively connected to the opposed ends of the receptacle. The cover has a front panel with a bottom portion adhesively connected to the front wall of the receptacle, an upper main front portion connected to the lower portion by a tear strip for disconnecting the cover from the bottom portion during opening of the carton, a pair of cover corner flaps hingedly connected respectively to the opposed ends of the cover front panel upper portion and adhesively connected to the cover end panels, a cover front panel extension hingedly connected to the front panel and folded back thereon, and a cover corner flap extension hingedly connected to the cover corner flap and folded back thereon, the extensions being hingedly connected together and providing a double thickness of material at the cover corners.

3,758,024
PLASTIC BAG

Robert F. Bethke, Bloomington; David P. MacFadden, Burnsville; Ronald H. Nelson, Sr., Northfield, and Steven G. Ross, Edina, all of Minn., assignors to U.S. Industries, Inc., Minneapolis, Minn.

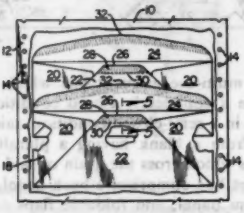
Filed June 24, 1971, Ser. No. 156,430
Int. Cl. B65d 33/00
U.S. Cl. 229—57 4 Claims

A flexible plastic container or trash can liner is manufactured by flattening tubular-shaped plastic material, folding the flattened material in half, and refolding the previously folded material in half a second time. The resulting eight-ply material is then simultaneously cut and heat-sealed to provide a bottom seam for the flexible container. The resulting flexible liner or container, when opened, has a very flat bottom portion circular in shape which includes three relatively large overlap fold portions when opened. The shape of the flexible container therefore will substantially conform to the shape of a conventional rigid, cylindrical container employed for the storage of refuse. The liner has excellent stress characteristics around the seam since the bottom is flat and the stresses thereby have less tendency to concentrate at the seam where the plies are sealed together.

3,758,025
CONTINUOUS WEB AND AFFIXED ENVELOPES WITH SELECTIVE SPACING

Richard A. Schafer, Arcadia, Calif., assignor to Pak-Well Corporation, Denver, Colo.

Filed July 30, 1971, Ser. No. 167,753
Int. Cl. B65d 27/10
U.S. Cl. 229—69 6 Claims

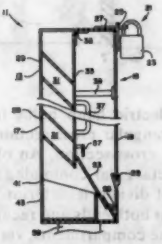


Envelopes of otherwise conventional construction, each characterized by a gummed tongue or tab affixed to the upper edge of the lower flap of the envelope rear panel along a weakening line therebetween, forming an extension of the lower flap which enables affixation of the tongues to a carrier web in various configurations of envelope overlap or shingling or in spaced relation on the web. When the envelopes are torn or burst along the weakening lines, the tongues remain affixed to the carrier web. The web is preferably provided with pin wheel perforations adjacent its longitudinal edges to enable rapid and automatic processing of the assembly through printing apparatus.

3,758,026
COIN COLLECTION BOX

Stephen H. Henderson, 1279 Woodston, Memphis, Tenn.

Filed May 22, 1972, Ser. No. 255,446
Int. Cl. G07f 9/06
U.S. Cl. 232—1 R 9 Claims



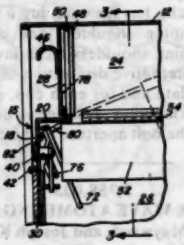
A coin collection device for use in self-service parking lots and like establishments which allows a first authorized person visibility of the money received for determining which parking spaces or the like have been paid for, and which allows a second authorized person access to the money. A transparent inner wall and a cover plate prevent the first authorized person from having access to the money received.

3,758,027

MAILBOX

Walter C. Morgan, P. O. Box 4088, Monroe, La.

Filed July 1, 1971, Ser. No. 158,941
Int. Cl. A47g *29/12*
U.S. Cl. 232—17 6 Claims



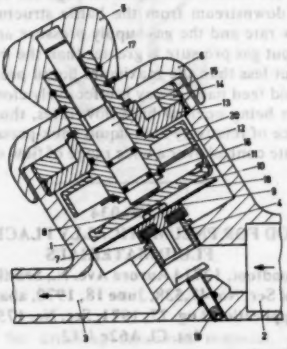
A mailbox having upper and lower compartments interconnected by a trapdoor which defines a bottom for the upper compartment when in closed condition. The lower compartment is provided with a lock device so that only authorized persons have access thereto. The upper compartment is provided with a pivotal mounted access door engaged with a mechanism for automatically closing the trapdoor when the access door to the upper compartment is opened and permitting the trapdoor to open when the access door to the upper compartment is closed. A signal flag is mounted on the mailbox for pivotal movement and is associated with the operating mechanism for the trapdoor to retain the trapdoor in closed position while the signal flag is in an upright signalling position.

3,758,028

MIXING VALVE AND THERMOSTAT FOR USE WITH SAME

Hermann Paul Lange, Singlistrasse 15, Zurich, Switzerland

Filed Nov. 29, 1971, Ser. No. 202,874
Claims priority, application Austria, Dec. 2, 1970, 4A 10848
Int. Cl. F16k *19/00*
U.S. Cl. 236—12 R 26 Claims



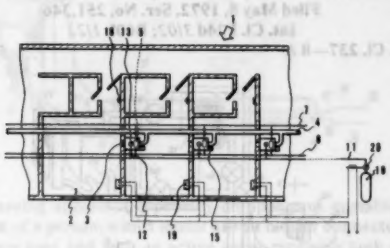
A mixing valve for controlling both total volume of flow and relative volumes of flow through two inlet valves, such as hot and cold water valves, has the two valves bearing against a pressure plate which is tiltable on an axis offset with respect to the two valves. By increasing or decreasing the angle of tilt of the pressure plate, both valves are caused to open or close, increasing or decreasing the total volume of flow. By rotating the axis of tilt of the pressure plate relative to the valves, one valve or the other is caused to open or close more than the other, varying the relative volumes of flow through the two valves. Thermostat means may be provided to control rotation of the pressure plate to maintain a uniform temperature of the mixed outflow of the two valves.

3,758,029

METHOD AND APPARATUS FOR AIR-CONDITIONING

Toshio Yoshida, 34 Tsukudshachiman, Shinjuku-ku, Tokyo, Japan

Filed June 30, 1972, Ser. No. 267,931
Int. Cl. G05d *7/00*
U.S. Cl. 236—49 2 Claims



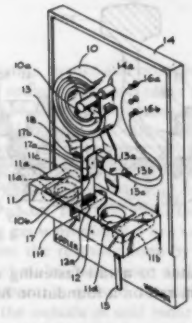
When air is introduced for heating, cooling or ventilation of rooms in building, for example in a hotel located in a polluted air district, oxygen in an amount calculated to meet the requirements of the number of inmates is continuously supplied to the room together with air through an oxygen supply passage opening into the air inlet of the room. At the same time negative-ions generated by a negative-ion generator installed at the air inlet are supplied to the air-oxygen mixture. In the event of a fire occurring in the building, the oxygen supply is automatically cut off. In the rooms of a hotel located in polluted air districts, such as urban areas or industrial zones, a salubrious pleasant air can be supplied, with oxygen and negative-ions present in the air kept at an optimum level and at the same time, the aggravation of fire by oxygen can be prevented.

3,758,030

THERMOVALVE-ELECTRIC SWITCH APPARATUS

Gene W. Osheroff, Las Vegas, Nev., assignor to Fluidtech Corporation, Inglewood, Calif.

Filed Dec. 7, 1971, Ser. No. 205,521
Int. Cl. G05d *29/00, 23/08*
U.S. Cl. 236—87 9 Claims



In the present invention, a pair of valves and an electric switch are controlled by the same bi-metallic strip, with the result that the operation of the switch and the operation of the

valves are inter-related. The device basically comprises a coiled bi-metal strip fixed at one end and whose other end is coupled to a flat plate. The plate rests on a member containing the valve orifices, which are covered or uncovered by the plate as it moves horizontally in one direction or another as the bi-metal coil rotates in a clockwise or counterclockwise direction in response to changes in ambient temperature conditions. Mounted on the bi-metal strip is a mercury switch whose angular position is made adjustable so that it can be made to operate at specified temperatures.

3,758,031

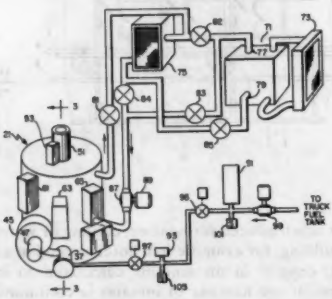
HEATER FOR AUTOMOTIVE VEHICLES

John P. Moran, 70 E. Main St., Hopkinton, Mass.

Filed May 8, 1972, Ser. No. 251,346

Int. Cl. F24d *3/02*; B60h *1/22*

U.S. Cl. 237—8 A **5 Claims**



The heat-generating system disclosed herein is adapted to burn diesel fuel and to otherwise effectively utilize available automotive electrical and pneumatic systems, e.g., such as those normally found on semi-trailer tractor trucks, and to thereby efficiently provide heat for maintaining an automotive engine at an easily started temperature and to provide heat for an operator, if needed, while the engine is stopped.

3,758,032

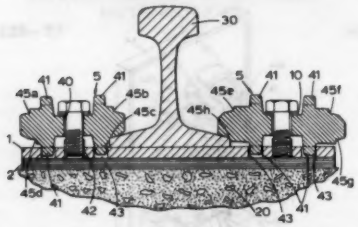
RAIL FASTENING ARRANGEMENTS

Otto Herman Varga, Bradford-on-Avon, England, and Ralph Huston, Pfafftown, N.C., assignors to Resilient Grip Limited, Bristol, England, by said Varga

Filed Nov. 3, 1971, Ser. No. 195,275

Int. Cl. E01b *9/46*

U.S. Cl. 238—338 **11 Claims**



The invention relates to a rail fastening arrangement for securing a flat bottom rail on a foundation having preformed holes therein.

There is provided a baseplate on which the flat bottom of the rail is adapted to rest and means for securing the baseplate to the preformed holes in the foundation. A pair of rail clips is provided one on each side of the rail with bolt means passing through a bolt aperture in each clip and engaging in a preformed bolt hole in the baseplate. Each clip has symmetrically spaced about its bolt aperture at least one pair of projecting heel lugs and the baseplate has symmetrically spaced about its bolt hole a complementary number of recesses adapted to receive and locate the clip heel lugs. Each clip is engageable with the baseplate with its lugs received and locates in the baseplate recesses, in at least two alternative dispositions. Each clip has for each lug a respective rail foot abutting and clamping shoulder, one of which rail foot abutting and clamping shoulders faces inwardly towards the rail foot for each alternative disposition of engagement of the clip with the baseplate and for each clip, each respective rail foot abutting and clamping shoulder is differentially spaced from the centre of the bolt aperture of the clip.

3,758,033

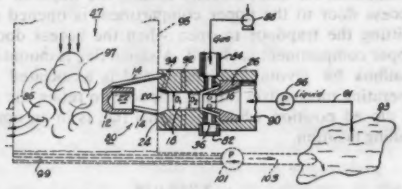
PRESSURE WAVE ATOMIZING METHOD

Robert E. Schurig, Maywood, and Joseph Korn, Fort Lee, both of N.J., assignors to Sonic Development Corporation of America, Yonkers, N.Y.

Division of Ser. No. 889,596, Dec. 31, 1969, Pat. No. 3,677,525, which is a continuation-in-part of Ser. No. 669,109, Jan. 19, 1968, abandoned. This application Jan. 17, 1972, Ser. No. 218,118

Int. Cl. B05b *1/04*

U.S. Cl. 239—4 **12 Claims**



Fluids to be mixed and atomized are fed into a converging-diverging nozzle which directs them towards a cavity member. In one embodiment of the invention, liquid is forced through the central opening of the nozzle, and gas is injected into the liquid at a plurality of points around the liquid stream through an inclined baffle structure near the converging portion of the nozzle. In another embodiment, air is fed into the central opening of the nozzle, and liquid through the baffle structure, as well as downstream from the baffle structure. The liquid supply flow rate and the gas supply pressure are regulated so that the input gas pressure is greater than the minimum liquid pressure but less than the maximum liquid pressure. The upstream liquid feed passageway is effectively closed at low flow rates, while being open at high flow rates, thus enabling the maintenance of relatively high liquid back-pressures for accurate flow rate control over a wide range of flow values.

3,758,034

METHOD FOR PNEUMATICALLY PLACING SEMI-FLUID MATERIALS

John T. Broadfoot, 12714 Aurora Ave. N., Seattle, Wash.

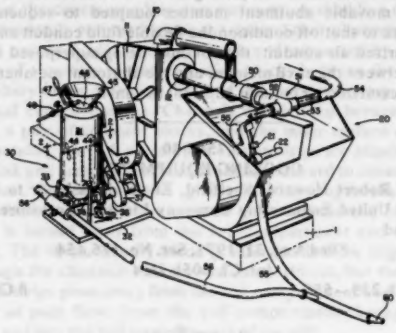
Division of Ser. No. 47,538, June 18, 1970, abandoned. This application Aug. 27, 1971, Ser. No. 175,462

Int. Cl. A62c *1/12*

U.S. Cl. 239—9 **7 Claims**

Quick-setting concrete is applied to a work surface by air conveying wet concrete through a hose to a nozzle and air conveying a dry accelerator powder for the wet concrete through a separate hose into juncture with the stream of suspended wet concrete a predetermined distance back of the nozzle. A positive metering concrete pump meters the concrete into a T-intersection where compressed air entering through one side of the top of the T impinges at substantially right angles to the flow of wet concrete through the base of the T resulting in shearing off of discrete pieces of wet concrete

which are conveyed through a hose attached to the other side of the T-intersection. The positive metering concrete pump is



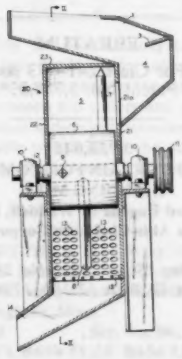
directly attached to a positive metering device for the accelerator powder so as to maintain the ratio of wet concrete to accelerator constant.

3,758,035

CRUSHER FOR TENACIOUS MATERIAL SUCH AS ASPHALT

Yoshio Ushiku, Tochigi-shi, and Hirokazu Saitoh, Ohmiya-shi, both of Japan, assignors to Mitsuboshi-Sangyo Co., Ltd., Tokyo, Japan

Filed June 1, 1971, Ser. No. 148,813
Claims priority, application Japan, June 20, 1970, 45/53341
Int. Cl. B02c *13/10, 13/28*
U.S. Cl. 241—73 **2 Claims**



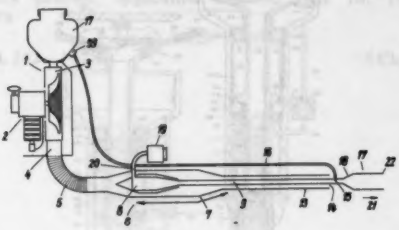
A crusher for crushing tenacious material, particularly asphalt. A horizontally arranged cylindrical casing has a rotary shaft concentrically mounted therein and at least two radial crushing rods are fixed on the rotary shaft at axially spaced locations. The casing includes end walls, one of which has an inlet opening at its upper part and a cylindrical wall which has perforations at its lower part. The crushing rod located adjacent to the inlet opening has a square cross-sectional shape with its opposite side surfaces being parallel to the end wall of the casing, and the remaining crushing rod has a square cross-sectional shape with its side surfaces being at an angle to the end wall of the casing.

3,758,036

SPRAYING APPARATUS

Herbert Bauder, Grossholzleute, and Otto Locher, Isny/Allgau, both of Germany, assignors to Heimo Geratebau Gesellschaft mit beschrankter Haftung, Isny/Allgau, Germany

Filed Dec. 23, 1970, Ser. No. 100,869
Claims priority, application Germany, Dec. 24, 1969, P 19 64 907.1
Int. Cl. B05b *3/14*
U.S. Cl. 239—102 **20 Claims**



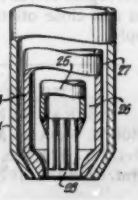
A spraying apparatus especially an apparatus portable on the back of a person, with a motor driven blower connected to a delivery pipe and with an active agent receiving tank connected to said delivery pipe, in which an oscillating burner resonator has its cooling means for purposes of generating a mist detachably connected to the blower, said cooling means including a cover surrounding said oscillating burner resonator.

3,758,037

FUEL BURNER AND PROCESS FOR GAS MANUFACTURE

Charles P. Marion, Mamoroneck, N.Y., and Blake Reynolds, Riverside, Conn., assignors to Texaco Development Corporation, New York, N.Y.

Filed Oct. 4, 1971, Ser. No. 186,207
Int. Cl. B05b *15/00*
U.S. Cl. 239—132.3 **20 Claims**

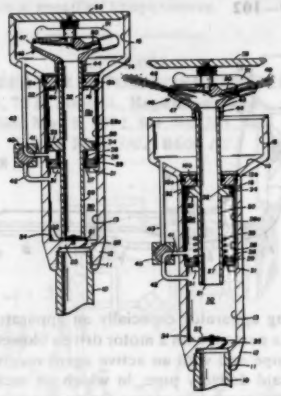


A partial oxidation burner and process for the manufacture of synthesis gas, reducing gas and other gas mixtures substantially comprising H_2 and CO. A hydrocarbon, oxygen-rich gas and, optionally, H_2O or some other temperature moderator are introduced into the reaction zone of a synthesis gas generator in which, by partial oxidation at an autogenous temperature in the range of about 1700° to 3500°F. and a pressure in the range of about 1 to 250 atmospheres, said synthesis, fuel, or reducing gas is produced. For example, a hydrocarbon is introduced into the reaction zone by way of the inner assembly of a novel multitube burner, and a mixture of oxygen-rich gas and steam is passed through a coaxial conduit disposed about the outside of said inner assembly. Said inner asembly comprises a central conduit of circular cross-section, having a plurality of parallel open-ended tubes extending downstream from the exit end of said central conduit and in communication therewith. The tubes terminate in a surrounding nozzle, which is the exit end of the coazial outer conduit.

3,758,038
HYDRAULICALLY ACTUATED ROTARY POP-UP SPRINKLER

Harold C. Ridgway, Garland, Tex., assignor to Telsco Industries, Dallas, Tex.

Filed Apr. 17, 1972, Ser. No. 244,836
Int. Cl. B05b *3/04*
U.S. Cl. 239—206 **20 Claims**

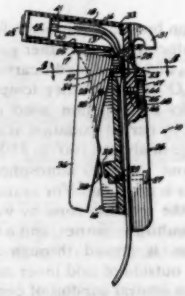


Pop-up sprinklers are widely used in irrigation systems to provide watering over large areas. Pop-up sprinklers in such systems are power actuated into an extended position for a sprinkling cycle and are then power actuated into a retracted position upon completion of the sprinkling cycle. The power actuator includes a two chambered cylinder with the upper chamber separated into first and second regions by a piston movable with an axial tube that supplies water to the sprinkling head from a supply source. To power the sprinkler into an extended position, water at the supply pressure is directed into the second region of the upper chamber thereby lifting the piston and the attached supply tube. Upon completion of a sprinkling cycle, the second region of the upper chamber is vented to atmosphere and water at the supply pressure directed into the first region drives the piston down to retract the sprinkling head and close off the supply tube from the source of water supply.

3,758,039
SPRAY GUN

William Wagner, 1800 W. 4th Ave., Miami Beach, Fla.

Filed Oct. 12, 1972, Ser. No. 297,055
Int. Cl. B05b *7/02, 1/30*
U.S. Cl. 239—372 **7 Claims**

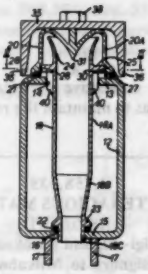


A spray gun for applying hair-setting fluids and the like and in which pressurized air and fluid are separately fed through flexible conduits for mixing in a mixing chamber prior to discharge through a nozzle, and including cut-off mechanism operative first to shut off the flexible fluid conduit and then shut off the pressurized air conduit to ensure that all fluid is blown out of the nozzle at the discontinuance of spraying, the shut-off mechanism comprising an anvil member and a relatively movable abutment member adapted to sequentially squeeze to shut-off condition the flexible fluid conduit and the pressurized air conduit, the conduits being superposed in series between the anvil member and the abutment member with the pressurized air conduit adjacent the anvil.

3,758,040
COOLING EQUIPMENT

David Robert Howard, Sheffield, England, assignor to Davy and United Engineering Company Limited, Yorkshire, England

Filed Aug. 31, 1971, Ser. No. 176,454
Int. Cl. B05b *1/14*
U.S. Cl. 239—550 **8 Claims**



Cooling equipment for supplying jets of cooling liquid in laminar form comprises a horizontal header and a plurality of nozzles each of which is removably located in openings in the top and bottom of the header. The nozzles are sealed in the header to prevent leakage and to ensure that water in the header issues through the nozzles.

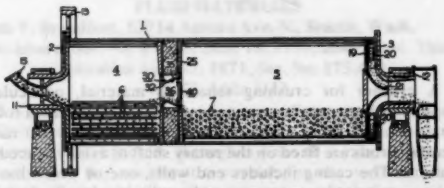
ERRATUM

For Class 241—73 see:
Patent No. 3,758,035

3,758,041
DIVISION HEAD CURTAIN FOR COMPARTMENTED GRINDING MILL

Donald R. Olson, and Eugene P. Waddell, both of Brookfield, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed May 15, 1972, Ser. No. 253,534
Int. Cl. B02c *13/286, 17/06*
U.S. Cl. 241—153 **4 Claims**



A grinding mill is disclosed having a cylindrical shell for rotation about its central axis, and a division head that divides the interior of the shell into axially disposed compartments, one compartment containing steel rods for relatively coarse grinding and another compartment containing steel balls for

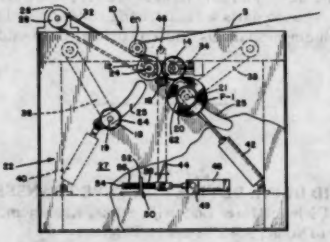
finer grinding. A passage defining liner extends through the division head assembly and defines a central passage through the division head assembly with a surface having the configuration of a truncated cone with its central axis coincident with the central axis of the shell and with its apex end pointed toward the coarse grinding compartment. A shielding disk is concentrically mounted within the conical central passage in a plane perpendicular to the shell axis and supported by a plurality of arcuately spaced mounting blocks between the outer periphery of the shielding disk and the inner periphery of the conical central passage. Channels are defined between the disk, a pair of adjacent blocks, and the inner surface of the surrounding liner. A plurality of curtain strips are attached to the disk and arranged to extend radially outward to cover each channel. The strips have greater radial length than the distance between the disk and the liner, and the end of each strip is turned away from the rod compartment end of the liner. The strips thereby block grinding balls from migrating through the channels into the rod compartment, but the ends of the strips pivot away from the rod compartment end of the liner as pulp flows from the rod compartment through the liner and into the ball compartment of the mill.

3,758,042

CONTINUOUS YARN WINDING APPARATUS

Stuart B. Sear, Gastonia, N.C., assignor to Petty Machine Company, Inc., Gastonia, N.C.

Filed Oct. 14, 1971, Ser. No. 189,185
Int. Cl. B65h *54/02*
U.S. Cl. 242—18 A **8 Claims**



A winder assembly for continuously taking up a textile strand onto one of two displaceable, self-supporting bobbins at high speed without interruption of the take-up of the strand. The strand is fed between nip rollers and upon transfer from one bobbin to the other is directed between one of the nip rollers and a displaceable transfer roll, the displaceable transfer roll being moved into engagement with one of the nip rollers before transfer.

3,758,043

STORAGE CARTRIDGE FOR WOUND MATERIAL

Henry J. Setzer, East Brunswick, N.J., and George S. Thompson, Newtown, Pa., assignors to Dennison Manufacturing Company, Framingham, Mass.

Filed , Ser. No. 86,395
Int. Cl. B65h *75/20*; **B65d** *85/04*
U.S. Cl. 242—55 R **8 Claims**

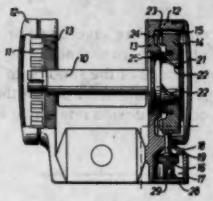
A storage cartridge for a coil of embossing tape. The cartridge is in the form of a partial ring with a relatively wide and short head and a long and narrow body. The tape is maintained within the cartridge by side lobes which are also positioned to permit the cartridge to be accommodated by a wide variety of embossing machines.

3,758,044

LOCKING DEVICE FOR VEHICLE SAFETY BELTS

Karl-Ivar Sigurd Nilsson, Upplands Vasby, Sweden, assignor to Granges-Essem AB, Vasteras, Sweden

Filed June 10, 1971, Ser. No. 151,882
Claims priority, application Sweden, June 10, 1970, 8064/70
Int. Cl. A62b *35/00*
U.S. Cl. 242—107.4 **4 Claims**



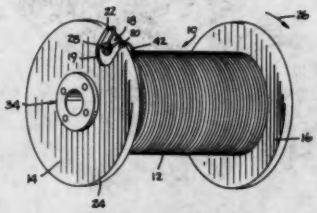
A locking device for retractable vehicle safety belts for preventing extraction of the belt only at a change of direction or velocity of the vehicle above a predetermined level, including a tiltable member having a first position releasing the belt and a second position locking the belt, said tiltable member being in the locking position only when actuated by a force above a certain limit.

3,758,045

TWISTER SPOOL AND METHOD OF WINDING YARN THEREON

Douglas Allen, Hogansville, Ga., assignor to Uniroyal, Inc., New York, N.Y.

Filed Mar. 5, 1971, Ser. No. 121,416
Int. Cl. B65h *75/28*, *75/14*
U.S. Cl. 242—125.2 **5 Claims**



A spool and method for winding thereon yarn made by a twister. The spool is adapted to form a loop of yarn designating when a predetermined length of yarn has been wound on the spool.

3,758,046

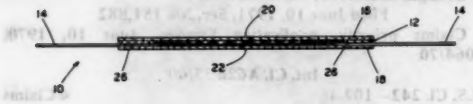
DEVICE FOR CONTROLLING TENSION OF WIRE DISPENSED FROM A REEL

Anthony Jordan, Des Plaines, Ill., assignor to WISCO, Des Plaines, Ill.

Filed Mar. 27, 1972, Ser. No. 238,377
Int. Cl. B65h *59/06*
U.S. Cl. 242—147 R **7 Claims**

A device for controlling the tension of a length of wire as it is being unwound from a spool across one end flange thereof.

A continuous, looped flexible mono-filament member is sandwiched between two coaxially secured discs extending around the circumference thereof with the extremities of the flexible member protruding radially beyond the periphery of the discs. The sandwiched portions of the flexible member are spaced radially from the axes of the discs. The protuberant extremities of the flexible member are severed to produce a plurality of flexible separated fingers or strands. The assembled discs can be mounted on a flange of the spool with the wire extending through the fingers to control tension of the wire as it is unwound from the spool, the device remaining stationary on the spool.



3,758,047

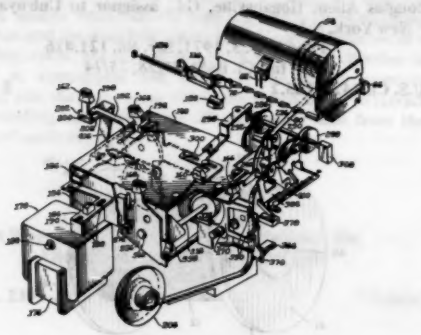
MOTION PICTURE PROJECTOR

Jack W. Thomsen, La Grange Park; Arthur E. Nupnau, Chicago; Raymond W. H. Kim, Morton Grove, and Jaroslav Cherniavskyj, Skokie, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 777,018, Nov. 19, 1969, Pat. No. 3,635,548. This application Jan. 28, 1971, Ser. No. 110,587

Int. Cl. G03b *1/04*; **G11b** *15/32*

U.S. Cl. 242—181 **13 Claims**



A shuttle is manually adjustable transversely of a film path to enable engagement of its claw in sprocket performations of standard 8mm and super 8mm films for intermittent movement thereof in opposite projection directions, the rate of which is selectively controllable by manual means. An interlock mechanism disables the manual means and enables the shuttle adjusting means when a switch for closing the power circuit of the projector is "off," and enables the manual means while disabling the other means when the switch is "on." A single solenoid in the circuit is energizable manually for removing a strip from a supply reel for projection, and manually and by filmstrip condition for returning the filmstrip to said supply reel. Responsively, the shuttle and the film gate, respectively, will be withdrawn from the film path and expanded to facilitate filmstrip movement through the gate for threading and rewind.

3,758,048

TAPE CASSETTE

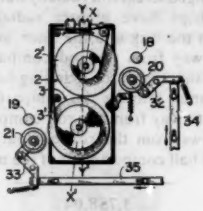
Hiroshi Sugaya, Suita, and Hideki Sakumoto, Moriguchi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 21, 1970, Ser. No. 100,336

Claims priority, application Japan, Dec. 23, 1969, 44/556; Mar. 4, 1970, 45/18891; June 18, 1970, 45/53770

Int. Cl. G11b *15/32, 23/10*; **B65h** *17/08*

U.S. Cl. 242—192 **3 Claims**



A tape cassette for magnetic recording and reproducing apparatus, wherein tape-supply and take-up reels are rotatably accommodated in a cassette body, the outer peripheries of the flanges of said reels are partially exposed to the exterior of said cassette body, and said flanges are mechanically engageable at the exposed parts with a driving roller of said recording and reproducing apparatus, thereby driving both said reels.

3,758,049

RAPID DRIVE DEVICE FOR TAPE TRANSFERS

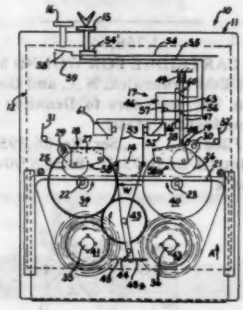
Theophiel Clement Josef Lodewijk Staar, Kraainem, Belgium, assignor to Staar, S.A., Brussels, Belgium

Filed Oct. 30, 1970, Ser. No. 85,649

Claims priority, application Belgium, Nov. 7, 1969, 81,313

Int. Cl. G11b *15/30, 15/44*

U.S. Cl. 242—201 **4 Claims**



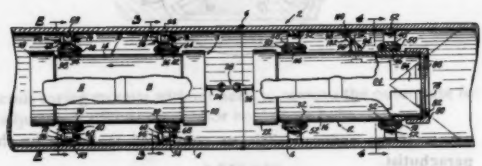
A tape transport is provided with fast forward and fast rewind drives and associated controls and a mechanism for relating the fast forward and rewind function to the direction in which the tape is moving at its normal playing speed when the fast forward or fast rewind control is actuated.

3,758,050

PHOTO INSPECTION POD ASSEMBLY FOR PIPELINES

Raymond K. Watts, 10136 Dunbarton Dr., and Walter Harry Chapman, 1108 Puerto Rico St., both of El Paso, Tex.

Division of Ser. No. 879,872, Nov. 25, 1969, Pat. No. 3,667,359. This application Mar. 2, 1972, Ser. No. 231,176
Int. Cl. B65g *51/06*
U.S. Cl. 243—32 3 Claims



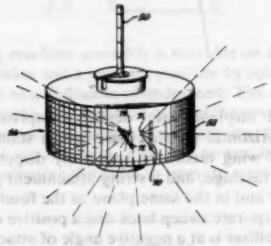
A self-contained inspection pod assembly for pipelines, propelled by gas pressure within the pipeline. The pod assembly has resilient cups thereon equipped with spring-loaded calibrated valves that stabilize travel speed.

3,758,051

VELOCITY CONTROL AND ORIENTATION OF A SPIN-STABILIZED BODY

Donald D. Williams, Inglewood, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 22,733, April 18, 1960, abandoned. This application Aug. 21, 1964, Ser. No. 391,187
Int. Cl. B64g *1/10*
U.S. Cl. 244—1 SA 3 Claims



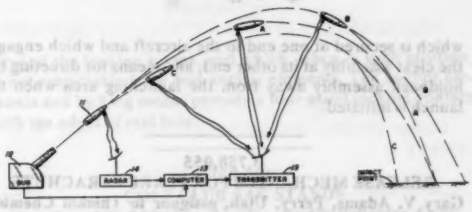
An orbiting satellite having a radio antenna and solar cells is oriented with respect to the earth and the sun to optimize the satellite antenna gain and the solar cell illumination. The satellite enters its orbit around the earth with its spin-axis initially oriented perpendicular to the earth's axis. The desired orientation of the satellite spin axis is parallel to the earth's axis and means is provided for processing the spin axis of the satellite to the desired orientation by applying a reactive force to the satellite in a proper plane. Nutation of the satellite is damped by a viscous damper provided therein. Means is provided for sensing the orientation of the satellite relative to the earth, the sun, or both. Deviations from the correct orbital period, eccentricity, and phase are determined from observations made from the earth. Means is provided to correct orbital deviations by applying a reactive force to the satellite with a predetermined amount of force and in the proper direction.

3,758,052

SYSTEM FOR ACCURATELY INCREASING THE RANGE OF GUN PROJECTILES

Robert L. McAlexander, Saratoga, Calif., and Lilburn G. Stout, Falmouth, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 9, 1969, Ser. No. 844,727
Int. Cl. F42b *13/30*
U.S. Cl. 244—3.14 7 Claims



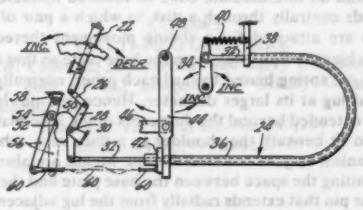
The present invention is a gun system which utilizes rocket assisted projectiles and accurately controls their placement. The projectile is fired by a gun and actual trajectory variables are compared in a computer with desired trajectory conditions. If there is a difference, the firing time of the rocket is altered to make the actual trajectory variable correspond to the desired condition. A radar system is utilized by the computer to obtain the trajectory information. A transmitter is connected to the computer to send the firing signal to a receiver mounted in the projectile.

3,758,053

DUAL INPUT CABLE

Armand Francis Amelio, Yonkers, N.Y., and Daniel J. Naples, Milford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Sept. 16, 1971, Ser. No. 181,138
Int. Cl. B64c *19/00*
U.S. Cl. 244—83 R 3 Claims



Control system for a helicopter which includes a cable arrangement in which a core wire connects the pilot's engine speed control lever and the engine fuel control and a sheath surrounding the core wire is connected to the collective pitch stick so that collective pitch inputs can bias fuel flow and with a connection for deactivating the collective pitch input at ground idle operation.

3,758,054

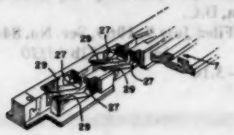
MULTI-POSITION AIRCRAFT HOLDBACK CLEAT

Nathan Melman, Levittown, Pa., and John P. Malriat, Pennsauken, N.J., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 24, 1972, Ser. No. 237,839
Int. Cl. B64f *1/12*
U.S. Cl. 244—115 7 Claims

The present disclosure relates to novel and improved apparatus for restraining an aircraft from a catapult assisted

take-off until a predetermined required launching force is developed. The improved aircraft restraining or holdback apparatus includes a multi-position cleat assembly inset in the aircraft launching surface, a frangible holdback assembly



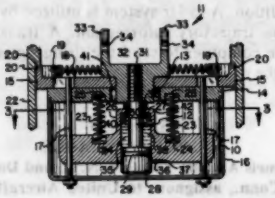
which is secured at one end to the aircraft and which engages the cleat assembly at its other end, and means for directing the holdback assembly away from the launching area when the launch is initiated.

3,758,055

RELEASE MECHANISM FOR FLARE PARACHUTE

Gary V. Adams, Perry, Utah, assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Feb. 17, 1972, Ser. No. 223,145
Int. Cl. B64d *17/38*
U.S. Cl. 244—149 **6 Claims**



A mechanism for releasing a drogue parachute from an aerial flare has a base plate with a central lug extending therefrom that has means for attaching a drogue parachute at its outer end, and an intermediate zone of reduced diameter; the lug extends centrally through a disk to which a pair of opposing pawls are attached for a sliding movement thereon; spring means bias the disk away from the base plate so that the pawls, which are spring biased toward each other, normally abut the central lug at its larger diameter. Hence, the pawls are normally extended beyond the diameters of the base plate and the disk to fit beneath the shoulder in a flare case, whereby the mechanism may be retained therein. Means are also provided for limiting the space between the base plate and the disk, and a shear pin that extends radially from the lug adjacent the disk may be used to insure that the pawls are normally maintained in their extended positions by abutting the larger diameter of the central lug.

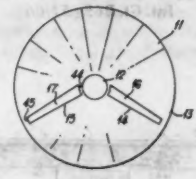
3,758,056

PARACHUTES

John Rothwell Mitchell, Woking, England, assignor to RFD-GQ Limited, London, England

Filed Feb. 25, 1972, Ser. No. 229,308
Claims priority, application Great Britain, Mar. 5, 1971, 6,078/71
Int. Cl. B64d *17/20*
U.S. Cl. 244—152 **8 Claims**

A parachute canopy is shaped so that the internal surface of the inflated canopy is concave near the peripheral hem and is convex nearer the apex of the canopy, vents being provided in the canopy to relieve the circumferential tensions generated within the canopy, which vents are covered by flaps which close the vents, wholly or in part, when the excess pressures have been relieved. The vents can be covered by extensible netting or flaps can have control cords operating by the move-



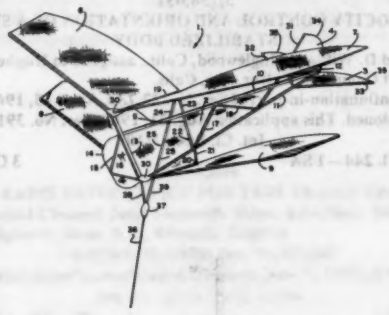
ments of the canopy fabric or controlled manually by the parachutist.

3,758,057

AIRPLANE KITE

Craig A. Stratton, 12821 Martha Ann Drive, Los Alamitos, Calif.

Filed Sept. 24, 1971, Ser. No. 183,543
Int. Cl. B64c *31/06*
U.S. Cl. 244—154 **9 Claims**



A tethered airplane kite design comprising a planar fuselage, a horizontal stabilizer, a vertical stabilizer, one or more pairs of wing members oppositely disposed and connected to the fuselage, and a string attachment point located directly below and in the same plane as the fuselage. All wing members incorporate sweep back and a positive dihedral. The horizontal stabilizer is at a negative angle of attack of approximately 13° with respect to the main wings. The rigid air frame structure and the position of the point to which the tether is attached with respect to the aerodynamic characteristics of the wing structure provide for an exceedingly stable flight characteristic.

3,758,058

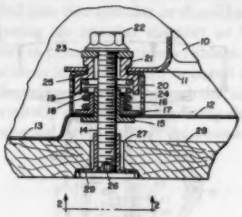
SHIPPING MOUNT FOR ROOM AIR CONDITIONERS

Herbert D. Neudeck, Cedar Rapids, and Ronald A. Thalacker, Amana, both of Iowa, assignors to Amana Refrigeration, Inc., Amana, Iowa

Filed Sept. 27, 1971, Ser. No. 183,843
Int. Cl. F16f *15/06*
U.S. Cl. 248—20 **4 Claims**

A shipping mount for a room air conditioner having a fixed outer case employs special nuts accessible from the bottom of the shipping block which engage the compressor hold down bolts and the shipping block to pull the compressor down tight

against the chassis base pan for shipping purposes. By removing the nuts, the compressor is freed to float normally on its



coils spring mounts without need to remove the outer case for adjustment of the compressor hold down bolts.

3,758,059

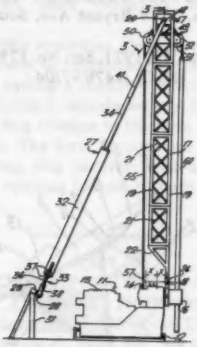
DRILLING APPARATUS

John Arpad Toth, Lower Plenty, Victoria, Australia, assignor to Mindrill Limited, Victoria, Australia

Filed Oct. 6, 1971, Ser. No. 187,011

Int. Cl. E21b *3/02*

U.S. Cl. 248—23 **4 Claims**



A drilling machine assembly is movable on a base between a drilling position and a hoisting position by operation of power means such as a hydraulic cylinder unit. The drilling machine assembly can be held firmly in each of the two positions by the interengagement of wedging surfaces on the machine assembly and on the base with the power means operating, thereby eliminating the need to operate screw clamps for this purpose.

3,758,060

CABLE CLAMP OR FASTENER

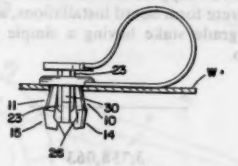
Jerome T. Schuplin, Parma Heights, Ohio, assignor to Fastway Fasteners, Inc., Lorain, Ohio

Filed Oct. 20, 1971, Ser. No. 190,725

Int. Cl. F16l *3/08*; **B65d** *63/16*

U.S. Cl. 248—74 PB **8 Claims**

A cable clamp or fastener is provided for clamping one or more cables to a wall having a hole therethrough. The clamp comprises a substantially flat flexible strap having anchor means at one end and locking means at the other end. The anchor means comprises spaced elements which are adapted to be flexed toward each other to facilitate their entry into and through said hole, and are of such configuration as to resist withdrawal through said hole when the elements are in unstressed condition. The locking means comprises a tenon-like element adapted to be introduced into the space between said anchor elements for the purpose of preventing flexing of the anchor elements toward each other, said introduction being accomplished without movement of said anchor elements to positions in which they are under stress. The locking means also includes a locking head which is movable into a position



beyond the locking means, and which, when in such position, is not retractable from said anchor elements. The anchor elements and locking means provide a four-point locking contact with the edges of said hole.

3,758,061

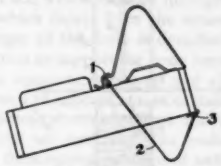
GOLF CLUB BAG STANDS

Arthur Townhill, 739 Alma Real Dr., Pacific Palisades, Calif.

Filed Aug. 4, 1971, Ser. No. 169,011

Int. Cl. A63b *55/06*

U.S. Cl. 248—96 **4 Claims**



My invention consists of a four legged stand made essentially of metal rod. Two of the legs from a frame with the golf bag suspended between them for sideways stability. Two other legs meet and are fastened together at the open end of the bag. These legs give endwise stability. Each leg of the first set joins a leg of the second set at ground level to form the stand.

3,758,062

MULTI-PURPOSE STAKE

Robert H. Caldwell, Jacksonville, and Larry I. Pauline, Alexander, both of Ill., assignors to Grizzly Corporation, Jacksonville, Ill.

Filed Apr. 13, 1972, Ser. No. 243,759

Int. Cl. A45f *3/44*; **E04c** *5/16*

U.S. Cl. 248—156 **1 Claim**

A disposable, inexpensive, multi-purpose stake of V-shape horizontal cross section having a sharpened end for penetrat-

ing the earth and a flat end for driving therein with a plurality of spaced apertures spaced along its length and a flange extending outwardly from the free ends of each of the legs of said "V" and interchangeable attachments to be used thereon either as a screed support for concrete flat work, as a nail stake for concrete form board installations, as a tent tethering peg, or as a grade stake having a simple attachment of a banner thereto.

3,758,063

ADJUSTABLE SEATS FOR TRUCKS, COACHES AND OTHER VEHICLES

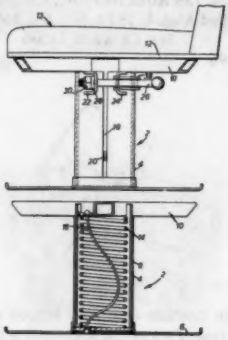
Robert Ronald Lacey, Bromham, England, assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 1, 1972, Ser. No. 230,905

Claims priority, application Great Britain, Mar. 3, 1971, 5941/71

Int. Cl. A47b 95/00

U.S. Cl. 248—161 **7 Claims**



Pedestal type seat mount comprises a pair of telescopic tubular members, one of which is attached to the vehicle floor and the other of which is attached to the seat and adapted to move vertically relative to the floor. The outer telescopic member carries a toggle operated clamping device which is operative to clamp the telescopic members together in selected positions of vertical adjustment. In one embodiment, the tubular members include guide members preventing rotation, while in another embodiment, the tubular members can rotate relative to each other for adjusting the direction of the seat forces and can also be clamped in any position of adjustment by a pair of rotaty cam members.

3,758,064

SEAT FOR HIGH-SPEED WATER CRAFT

Koji Sawaki, Hamakita, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Shizuoka-ken, Japan

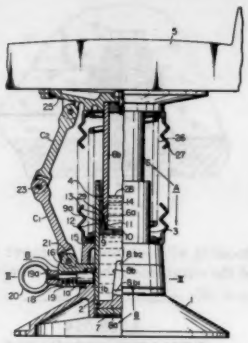
Filed July 20, 1971, Ser. No. 164,314

Claims priority, application Japan, July 20, 1970, 45/71744

Int. Cl. F16m 11/30

U.S. Cl. 248—403 **5 Claims**

A shock and vibration absorbing seat for high-speed boats, in which there is provided a base, a seat main body above the base, a plurality of slidably telescoping upper and lower cylinders constituting a pillar structure interposed between the base and the seat main body and containing a damping oil, an annular body rotatable disposed around the lower cylinder, a lock pin slidably supported by the annular body to be urged into any one of several holes provided in said base, a two-link knuckle joint interconnecting the seat main body can be moved only vertically relatively to the annular body without rotation relative thereto, and damping means for operating cooperatively with the damping oil to damp the movement of



the seat main body relative to the base near the upper and lower extremities of the movement.

3,758,065

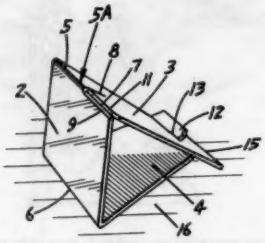
CARD SUPPORTING DEVICE

Mauritz C. Ranseen, 3019 Bryant Ave. South, Apt. 2, Minneapolis, Minn.

Filed Sept. 13, 1971, Ser. No. 179,830

Int. Cl. A47b 97/04

U.S. Cl. 248—459 **4 Claims**



A display device for supporting cards such as price tags, product identification cards, posters and the like. The device is manufactured from flat cardboard or paperboard or the like and distributed flat. It can be set up into card supporting position without the use of staples, adhesive, etc. The device includes a sloping front wall and a sloping rear wall connected at a junctional apex having a card-receiving slit extending from one lateral edge of the apex to a median portion. The bottom ends of the front and rear walls are connected by a base wall connected to the front wall and having means interlocking with cooperating means on the rear wall.

3,758,066

APPARATUS FOR FABRICATING A PIPE JOINT SEALING DEVICE

Harry W. Skinner, and Fouad M. Deeb, both of Fort Wayne, Ind., assignors to Harry W. Skinner, Fort Wayne, Ind.

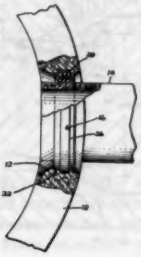
Filed Nov. 11, 1971, Ser. No. 197,729

Int. Cl. B28b 7/30

U.S. Cl. 249—95 **6 Claims**

This disclosure relates to an apparatus for fabricating a pipe joint sealing device, this device including a concrete structure, such as a manhole, having an opening in the wall thereof provided with a rubber lining or gasket. It is the purpose of this invention to provide the concrete structure with the sealing ring or gasket permanently locked therein in fluid-tight engage-

ment. The apparatus includes an annular support preferably fabricated of glass fiber reinforced plastic, this support resembling the wheel and rim of an ordinary automobile wheel which is adapted to mount the usual rubber tire. This support is radially divided into two annular or disc-like sections, one of the sections having an annular support or boss adapted to receive thereover in coaxial relation a rubber-sealing ring. The two support sections are detachably secured together so as to retain the sealing ring in position, and the support is further designed with radially outwardly extending sides which define a generally U-shaped cross-section or channel. This channel



shape is of such size that the sealing ring seats on the base thereof with the sides extending angularly outwardly therefrom.

In the use of this apparatus, the support or form with the sealing ring thereon is supported in position in a concrete mold set up for casting a concrete structure, such as a manhole. Liquid concrete is introduced into the mold in the usual manner in encircling relation to the form and rubber ring and caused to harden. The form sections are eventually removed leaving the sealing ring securely cast and locked into the perimeter of the opening formed by both the sealing ring and the support form.

3,758,067

MOVABLE MULTIPLE CASTING MOULDS AND ELEMENTS THEREFOR

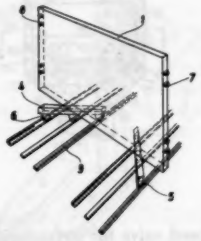
Armin Kleiber, Mozartstr. 5, Karlsruhe, Germany

Filed Mar. 1, 1972, Ser. No. 230,630

Claims priority, application Germany, May 12, 1971, P 21 23 478.6

Int. Cl. B28b *7/26*

U.S. Cl. 249—129 **8 Claims**



A movable casting mould for use in a production line for such articles as prefabricated concrete slabs is adapted to run on a track which may comprise parallel rails. The mould is assembled from a plurality of individual movable elements each comprising a panel which forms a side wall of an individual mould, and running gear which preferably includes rotatable ball units in contact with said track to allow movement in direction both parallel and perpendicular to the planes of the panel.

3,758,068

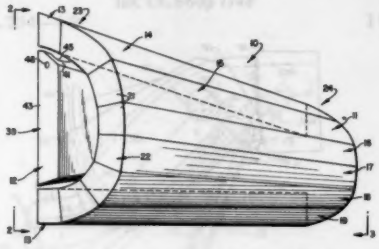
FORM FOR MOLDING A TAPERED BORE IN CONCRETE

George W. Lengel, R.F.D. No. 1, Pine Grove, Pa.

Filed Nov. 18, 1971, Ser. No. 200,037

Int. Cl. E04g *15/04*; **B28b** *7/30*

U.S. Cl. 249—177 **5 Claims**



A form including a tapered body of cylindrical cross section for mounting between the inner and outer sections of a mold and with its ends in abutting engagement with adjacent corners of both mold sections, and around which concrete is poured between the mold sections to produce a bore in the concrete, when set, which extends through the corner of the concrete and which tapers from the exterior to the interior thereof. A hanger of the form is detachably secured to the outer mold section to support the body between the mold sections while the concrete is poured and allowed to set. The body is composed of tapered staves certain of which may be detached to permit contraction of the body for removal thereof from the set concrete. The ends of the body are shaped to abut flush against portions of walls forming right angular corners of the inner and outer mold sections.

3,758,069

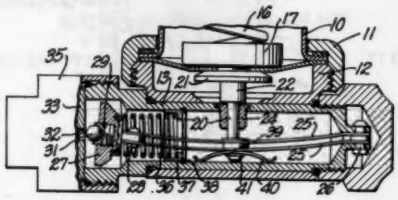
RIBBON TYPE FLOW CONTROL DEVICE

David E. Whitten, Northridge, Calif., assignor to Air-Dry Corporation of America, Northridge, Calif.

Filed Dec. 29, 1971, Ser. No. 213,669

Int. Cl. F16k *17/04*, *31/12*

U.S. Cl. 251—58 **10 Claims**



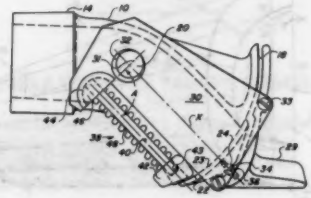
A ribbon type flow control device which provides a variable mechanical advantage. A ball type poppet is removably mounted in a valve seat. A pair of elongated flat resilient ribbons are connected at one end thereof to the ball and fixed at the other end. A diaphragm reacts to pressure changes to move a push rod transversely against the midportion of the ribbons and deflect them into an arcuate configuration. Deflection of the ribbons moves the ball away from the valve seat. The push rod has a mechanical advantage with respect to movement of the ball. This mechanical advantage decreases with increased deflection of the ribbons. When the ball is in closed position engaging the valve seat, the ribbons buckle to provide an added mechanical advantage between movement of the push rod and movement of the ball.

3,758,070

SELF-CLOSING, GUILLOTINE-TYPE, SHUTOFF VALVE

William J. Zehr, Des Plaines, Ill., assignor to The Protectoseal Company, Bensenville, Ill.

Filed Sept. 22, 1972, Ser. No. 291,201
Int. Cl. F16k 3/04
U.S. Cl. 251—86 4 Claims



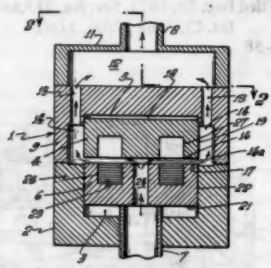
A hand-operated, guilliotine-type, self-closing, viscous liquids shutoff valve having maximum effectiveness in self-aligned sealing pressure between the valve plate and valve seat when the valve is closed, and reduced forces resisting the hand effort when the valve is open, and effectively wiping the liquid from the valve seat in the operation thereof.

3,758,071

MAGNETICALLY-ACTUATED FLUID CONTROL VALVE

Victor C. Anderson, San Diego, Calif., and Ronald C. Horn, New Brighton, Minn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 26, 1971, Ser. No. 202,286
Int. Cl. F16k 31/06
U.S. Cl. 251—139 4 Claims



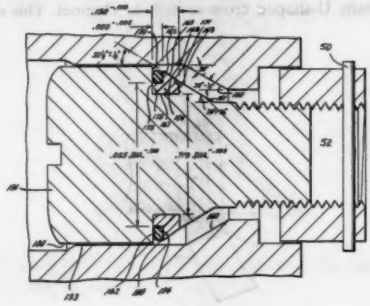
A body member formed as a solid block of high purity iron is provided with an axial bore forming a fluid inlet passage and a planar end wall surrounding the bore. The valve member which blocks the inlet flow also is shaped as a solid block formed of high purity iron. Further, this latter member is slidably carried in a casing and itself has a planar end wall adapted to flushly engage the end wall of the valve body member and, when so engaged, to block the inlet flow. The body member carries an electric coil to magnetize the high purity iron pieces and cause the valve member to move into its flow-blocking position. When the coil is not energized, fluid flow admitted through the axial bore spreads laterally and forces the valve member away from the valve body member to create a gap in the order of 0.010 inch. This small stable gap allows closure of the valve with very low electrical power.

3,758,072

SEALING ARRANGEMENT

David P. Herd, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.

Filed Feb. 16, 1971, Ser. No. 115,621
Int. Cl. F16k 1/38
U.S. Cl. 251—332 11 Claims



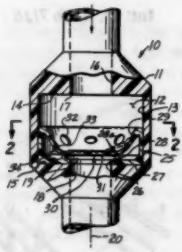
Sealing arrangement comprising a semi-rigid seal ring sealed to its supporting member on upstream side by an elastomer ring to prevent expansion and extrusion of seal ring by fluid pressure when tapered supporting member is moved mechanically to disengage tapered seal ring from surface with which it seals. Arrangement is useful in actuators for diverters for through flow line tools in oil wells.

3,758,073

VALVE FOR PHYSIOLOGICAL DRAINAGE ACTUABLE BY LATERAL COMPRESSION

Rudolf R. Schulte, 5377 Overpass Rd., Santa Barbara, Calif.

Filed Oct. 26, 1971, Ser. No. 192,211
Int. Cl. F16k 31/58
U.S. Cl. 251—342 3 Claims



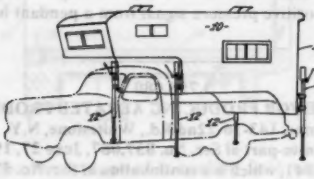
A normally-closed valve for physiological drainage which can be opened by lateral compression. A valve body defines an interior flow cavity with an inlet and outlet passage opening therein through the body. A peripheral valve seat extends continuously around the outlet passage and faces into the flow cavity, the valve body and valve seat being flexible and deformable by lateral compressive force exerted externally on the valve body. A valving member is movably disposed in the flow cavity and adapted to make a fluid-tight sealing fit with the valve seat when the valve body is undistorted, and to leave a flow passage between them when the valve body is distorted by lateral compression.

3,758,074

CAMPER LIFTING SYSTEM AND REMOVABLE JACKS THEREFOR

Edward William Jeffries, 151 Hacienda, Arcadia, Calif., and Raymond Elmer Jeffries, Jr., 1831 Alpha Ave., South Pasadena, Calif.

Filed Aug. 7, 1972, Ser. No. 278,624
Int. Cl. B60p 1/64
U.S. Cl. 254—45 11 Claims



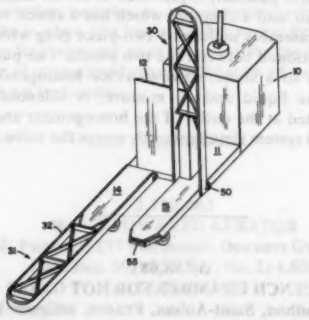
Removable jack lifting means for use with a heavy body, such as a camper, and detachably carried on a motor vehicle. A plate with at least one notched vertical web is secured to each corner of the body, manually actuated hydraulic jack having telescoping tubular sections is removably affixed to each such plate by bracket members encircling the outer tubular section and carrying transverse studlike elements which are insertable in the web notches. The tubular sections of each jack may be extended gradually to lift up the corner of the body to which it is removably affixed, until the entire body is elevated to where no further support is provided by the vehicle. The latter may then be driven away. The body may be remounted by reversing the process. This is facilitated by a slow release valve in the hydraulic portion of the jack. By providing a plate with a pair of parallel notched edged extensions for each corner of the body, unpowered telescoping tubular support members may be utilized merely to provide support so that a single powered jack may be moved from corner to corner to accomplish the actual lifting or letting down of the body.

3,758,075

PIVOTALLY MOUNTED FORK EXTENSIONS FOR LOW-LIFT PALLET TRUCKS

Richard S. Briggs, Los Altos Hills, Calif., assignor to Integrated Handling Systems, Menlo Park, Calif.

Filed Apr. 14, 1971, Ser. No. 133,933
Int. Cl. B60p 1/00
U.S. Cl. 254—2 R 4 Claims



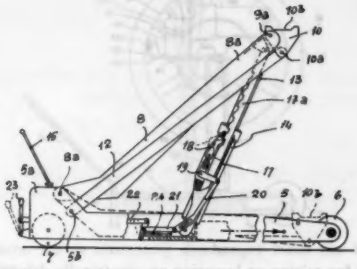
A low-lift pallet truck of the type having a pair of forks operative to raise pallets a small distance above the ground for transporting including a pair of pivotally mounted fork extension frameworks for raising and transporting at least two adjacent pallets. The fork extensions are rotatable between an upright vertical position to facilitate maneuverability of the truck and an extending horizontal position resting on the forks for simultaneous transpo.tation of adjacent pallets.

3,758,076

MOBILE LIFT APPARATUS PARTICULARLY FOR MOTOR VEHICLES WITH AUTOMATIC SAFETY DEVICE

Jacques Tranchero, via Villanovetta 2, Piasco, Italy

Filed Apr. 8, 1971, Ser. No. 132,481
Claims priority, application Italy, Apr. 8, 1970, 68171 A/70
Int. Cl. B60p 1/48
U.S. Cl. 254—8 R 1 Claim



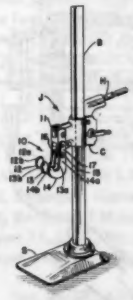
A mobile lift, particularly for use with heavy vehicles is provided with first and second rectangular frame members and wheels for journalling the first frame member. The second rectangular frame member is comprised of a parallel linkage system and is pivotly mounted at one end thereof on the first frame member. The other end of the second frame member includes a pair of laterally spaced apart ears that are pivotly secured to a pair of supporting brackets each of which has one surface that is maintained in the horizontsl position at all times. A hydraulic cylinder is pivotly mounted on the first frame and the piston of the cylinder is pivotly mounted to the second frame. A pair of laterally spaced apart telescoping racks are pivotly mounted on the first frame concentrically with the cylinder and a pawl cooperates with each of the racks. Lever means are used for controlling the movement of the pawls in opposition to spring means that normally maintain the pawls in engagement with the racks.

3,758,077

BUMPER LIFT HOOK

James Glenn Fisher, Hartwell, Ga., assignor to NVF Comapny, Wilmington, Del.

Filed Feb. 23, 1972, Ser. No. 228,600
Int. Cl. B66f 3/00
U.S. Cl. 254—133 17 Claims



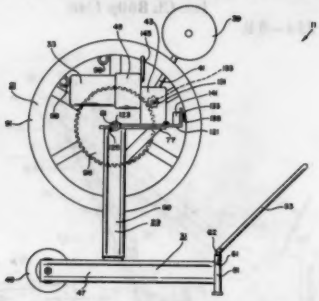
A bumper lift hook including a bracket means, a plurality of movable bumper engaging hooks carried by said bracket means, at least one of said hooks, after being moved, insertable through a slot in a vehicle bumper, and all of said hooks engageable with the bottom edge of a bumper.

3,758,078

WATER PUMP HOIST

James F. Grenn, Rt. 2, Box 169, Bogue Chitto, Miss.

Filed June 2, 1971, Ser. No. 149,178
Int. Cl. B66d *3/00*
U.S. Cl. 254—166 **5 Claims**



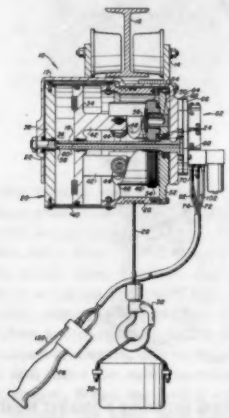
A hoist for raising or lowering an electrically driven water pump into or out of a well, i.e., the pump being suspended by a length of flexible conduit. The hoist includes a main support member which is mounted on a hand truck-like base member, a pair of reels rotatably mounted on the support member, i.e., a main reel for receiving the flexible conduit and an auxiliary reel for receiving the electrical power cord, and a brake gear motor which rotatably drives the main reel selectively in forward and reverse directions, i.e., respectively winding the flexible conduit about the main reel for hoisting the pump out of the well and unwinding the conduit from the main reel for lowering the pump into the well, knockdown structure is incorporated throughout to facilitate expeditious disassembly of the various components one from the other, a feature of great importance, particularly at locations where the head of the well is enclosed in a cramped pumphouse.

3,758,079

CONTROL SYSTEM FOR BALANCING HOIST

William Workman, Jr., Spring Lake, and George Doig, Pontiac, both of Mich., assignors to Gardener-Denver Company, Quincy, Ill.

Filed Nov. 18, 1970, Ser. No. 90,499
Int. Cl. B66d *1/08, 1/48*
U.S. Cl. 254—168 **6 Claims**



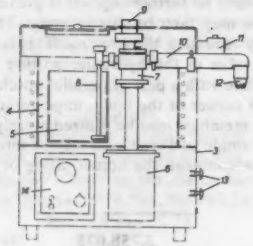
A control system for a pneumatically operated balancing hoist in which a load attached to the hoist cable is balanced by regulating air pressure acting on the piston of an expansible chamber hoist motor. The control system is characterized by a pneumatic control circuit including a pressure regulating valve which has a sensor operable to sense the pressure in the hoist motor chamber required to balance a load and set the regulator valve to maintain the load balancing pressure value. The control circuit also includes a pneumatically operated valve which limits the flow of compressed air to the hoist motor to prevent rapid wind-up of the hoist cable. A further feature of the control system includes a circuit arrangement in which the hoist motor exhaust valve is operable to exhaust pressure air from the motor chamber only in response to receiving a positive pressure signal from a pendant hoist controller.

3,758,080

MACHINE FOR PRODUCING AERATED PRCDUCTS

John MacManus, 143-16-22nd Rd., Whitestone, N.Y.

Continuation-in-part of Ser. No. 837,087, June 27, 1969, Pat. No. 3,713,841, which is a continuation of Ser. No. 571,885, Aug. 11, 1966, abandoned, and a continuation-in-part of Ser. No. 154,431, June 18, 1971, Pat. No. 3,700,214, which is a division of Ser. No. 883,867, Dec. 10, 1969, Pat. No. 3,606,266. This application Apr. 26, 1972, Ser. No. 247,575
Claims priority, application Great Britain, Dec. 31, 1968, 61,986/68; Feb. 13, 1969, 7,982/69; Sept. 5, 1969, 44,032/69; Apr. 29, 1971, 12,000/71
Int. Cl. B01f *15/02*
U.S. Cl. 259—4 **13 Claims**



The machine includes a motor-driven pump having an inlet operatively connected both to an air intake and to an unpressurized liquid product container, whereby the liquid product and air are simultaneously drawn into the pump. An adjustable needle valve assembly is provided at the air intake to control flow of air into a chamber which has a check valve at its outlet. The assembly includes a two-piece plug which has an air filter positioned between the two pieces. The pump outlet is connected to a static, narrow-orifice homogenizer which emulsifies the liquid and air mixture. A solenoid-operated valve is located at the outlet of the homogenizer and an electrical control system simultaneously opens the valve and starts the motor.

3,758,081

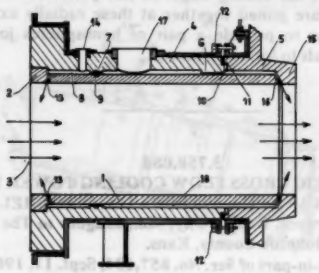
QUENCH CHAMBER FOR HOT GASES

Francois Prudhon, Saint-Auban, France, assignor to Rhone-Progil, Courbevoie, France

Filed Mar. 31, 1971, Ser. No. 129,841
Claims priority, application France, Apr. 2, 1970, 7011873
Int. Cl. B01f *3/04*
U.S. Cl. 261—18 B **4 Claims**

A quench chamber for hot gases comprising an internal jacket formed of porous graphite and defining an internal volume, an external jacket encasing the internal jacket and

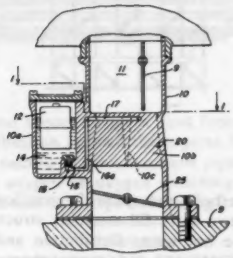
defining at least one compartment therebetween and passage means communicating with the compartment and the internal volume for the passage of a cooling fluid to the internal volume.



3,758,082
QUAD JET

Frank W. Kertell, Santa Cruz, Calif., assignor to Brooks Walker, San Francisco, Calif.

Continuation of Ser. No. 672,773, Oct. 4, 1967, abandoned.
This application Sept. 15, 1970, Ser. No. 72,526
Int. Cl. B01f *3/04*
U.S. Cl. 261—23 A **2 Claims**



This invention pertains to a carburetor having four main fuel nozzles in place of a lesser number and at the ends of tube extensions for improved atomization of the main fuel nozzle, by the use of streamlined vanes in the form of a cross between the four main fuel outlets.

3,758,083
WAVE-POWERED AERATOR

William E. Palmer, 5237 Fairmount, Downers Grove, Ill.

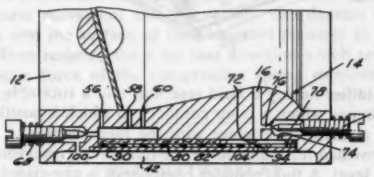
Filed Dec. 30, 1971, Ser. No. 214,035
Int. Cl. E02b *3/06*
U.S. Cl. 261—25 **4 Claims**

A system is disclosed for taking atmospheric air and forcing it to the bottom of a large body of water, such as a lake, using only the energy available in waves. A number of flexible chambers and rigid chambers are alternately interconnected to form a string extending down into the lake. A rigid chamber communicates with the atmosphere above the lake, and adjacent chambers are connected through a check valve which opens only when pressure in an upper chamber is greater than the pressure in a lower chamber. Pressure differentials in the water caused by waves forces the air into successively lower chambers. Air is ultimately discharged from the lowermost chamber.

3,758,084
NOZZLE CHECK VALVE SYSTEM

Charles H. Tuckey, Cass City, Mich., assignor to Wallro Corporation, Cass, Mich.

Filed Dec. 9, 1971, Ser. No. 206,324
Int. Cl. F02m *17/04*
U.S. Cl. 261—35 **4 Claims**



A carburetor of the diaphragm type in which a fuel duct from the diaphragm chamber to the venturi mixing passage is formed with branch passages, the first of which flows directly to the mixing passage and the second of which is controlled by a manually operated control valve leading to the mixing passage. A check valve is provided to close, in one position, the fuel duct from the mixing passage, and, in a second position to block the first branch of the fuel duct, leaving the second branch as the fuel supply duct. In an intermediate position of the check valve, fuel can flow through both branch passages to provide an acceleration fuel flow during a change-over condition from idle to full throttle.

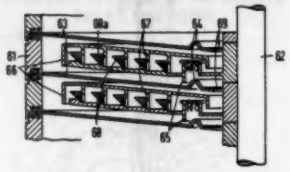
3,758,085
CENTRIFUGAL DEVICE FOR TREATING GASES OR VAPORS WITH LIQUIDS

Hellmuth Mentschel, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 15, 1971, Ser. No. 153,208
Claims priority, application Germany, June 18, 1970, P 20 29 994.9
Int. Cl. B01d *47/16*
U.S. Cl. 261—89 **11 Claims**

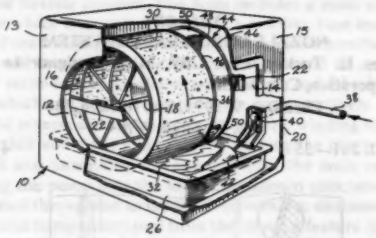
A centrifugating device for reacting gases or vapors with liquids or with liquid or solid substances finely distributed in liquids, comprises a centrically arranged rotor shaft to which rotor wheels are attached which carry centrifugating or fling members with reaction stages being formed by fixed partitions

between the rotor wheels. The centrifugating members at least, in part, are made in the form of bristles, and baffles are



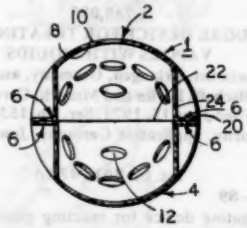
located on the rotor wheels. The fling and baffle members serve to destroy and re-form the liquid surface.

3,758,086
HUMIDIFIER WITH FLUSHING SYSTEM
Hubert M. Pugh, North Judson, Ind., assignor to Thermo-Products, Inc., North Judson, Ind.
Filed Dec. 1, 1971, Ser. No. 203,608
Int. Cl. B01f *3/04*
U.S. Cl. 261—92 **3 Claims**



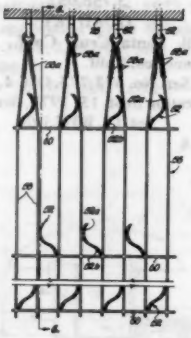
A humidifier having a fluid reservoir and a rotatable fluid absorption pad which is in air contact and which is positioned over the reservoir in contact with the fluid therein. A fluid inlet is provided for maintaining the fluid in the reservoir at a specified level. A fluid transfer component is associated with the absorption pad and upon rotation of the absorption pad causes a portion of the fluid in addition to the fluid absorbed by the pad to be removed from the reservoir so that a continual fresh supply of fluid enters the reservoir through the fluid inlet during rotation of the pad.

3,758,087
CONTACT DEVICE
Harry E. Hoon, Jr., Strongsville, Ohio, assignor to Envirotech Corporation, Salt Lake City, Utah
Filed Apr. 20, 1971, Ser. No. 135,586
Int. Cl. B01t *3/04*
U.S. Cl. 261—94 **1 Claim**



A filter device in the form of a perforated, hollow spherical contact article for use in an apparatus for intercontacting fluid streams is described and illustrated. Preferably, the article comprises a pair of similarly shaped polymeric hemispheres, each of which has a plurality of spaced, radially extending portions adjacent the mating edge. In this preferred form, the hemispheres are joined together at these radially extending portions so as to provide a pair of hemispheres joined at spaced intervals to form a sphere.

3,758,088
HYPERBOLIC CROSS FLOW COOLING TOWER WITH BASINS AND FILL INTEGRATED INTO SHELL
Homer E. Fordyce, Kansas City, Mo., assignor to The Marley Company, Johnson County, Kans.
Continuation-in-part of Ser. No. 857,134, Sept. 11, 1969. This application Dec. 10, 1971, Ser. No. 206,843
Int. Cl. B01f *3/04*
U.S. Cl. 261—111 **10 Claims**

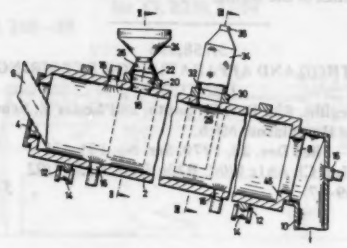


A fireproof, hyperbolic, natural draft, crossflow water cooling tower having two story fill assembly structure between respective concrete hot water distribution and cold water basins within the tower shell and integral therewith adjacent the air inlet of the shell. Stainless steel fill and eliminator supports suspended from the distribution and basin units carry transversely three-quarter wave asbestos cement board fill members and transversely full wave eliminator bars respectively cut from corrugated sheets. The fill members are disposed on edge with the longitudinal length thereof generally parallel to the air flow through each fill assembly structure while the eliminator bars lie in flat, generally horizontal disposition with the longitudinal axes thereof tilted for drainage of the bars and located perpendicular to the path of travel of air through respective fill assembly structures.

3,758,089
KILNS
Friedrich Kocks, Freiligrathstrasse 1, Dusseldorf, Germany
Filed Nov. 10, 1971, Ser. No. 197,423
Claims priority, application Germany, Nov. 25, 1970, P 20 57 931.1
Int. Cl. C21b *1/06*
U.S. Cl. 266—18 **16 Claims**

A drum kiln is provided for treating ores and like materials for preheating and prereduction which kiln includes an elongated cylinder journalled for rotation with its axis inclined to the horizontal, means for rotating said cylinder to-and-fro

through an angle less than 360° and a port in the wall of said cylinder intermediate its ends and position so that the material



in the cylinder does not contact it, said port selectively admitting and discharging solids and gases into the cylinder.

3,758,090

COMBUSTION APPARATUS FOR BLAST FURNACES

Teruo Shimotsuma; Kazuo Kunioka, both of Yokohama, and Takeo Yamada, Hodogaya-ku, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 26, 1971, Ser. No. 128,377

Int. Cl. C21b 7/16

U.S. Cl. 266—41 **1 Claim**

A combustion apparatus for a blast furnace for providing complete combustion beyond the tuyeres by injecting a hot blast which is caused to swirl in a blow pipe and into the furnace, causing oxygen or oxygen enriching air to swirl in a burner and into said blow pipe and adding fuels to the burner.

3,758,091

RESILIENT END ABUTMENT

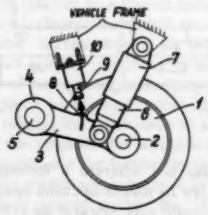
Winfried Heinz, Accum; Wilhelm Schwartz, and Henricus Tromp, both of Wilhelmshaven, all of Germany, assignors to Fried Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Aug. 2, 1971, Ser. No. 167,945

Claims priority, application Germany, Aug. 13, 1970, P 20 40 204.4

Int. Cl. F16f 1/37

U.S. Cl. 267—65 R **5 Claims**



A resilient abutment unit, especially for use in connection with motor vehicles, according to which a pushrod equipped piston is guided in a cylinder comprising resilient spring means, while the piston has at least its circumferential cylinder engaging surface provided with resiliently compressible material so that said piston will be able in response to shocks acting eccentrically thereon to occupy an inclined position in the cylinder.

3,758,092

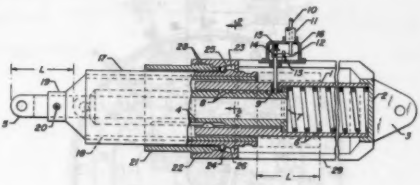
POSITION ADJUSTMENT DEVICE WITH DEFORMATION TYPE DAMPER MEANS

Eugene R. McGregor, Morris, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Oct. 29, 1971, Ser. No. 193,644

Int. Cl. F16f 3/02

U.S. Cl. 267—131 **10 Claims**



A spring-biased mechanical positioning device of the type providing multiple positioning of an extensible-retractable member and compression spring means to effect the return of such member incorporates therewith a special energy absorbing deformation-type damper means to overcome an inherent rapid action return movement from the compression spring means provided in the device. The energy absorbing damper portion embodies the use of a deformable, elastomeric surface on an elongated member and a slidable encompassing ring member with internal tapered ball holding recess means such that the ball means therein can roll freely for one direction of rectilinear movement and, conversely, can depress the ball means into the surface of the elongated member to cause a wave-form resisting force for that direction which resists the expansion force of the compression spring member of the device.

3,758,093

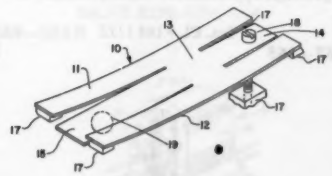
PNEUMATIC RELAY

Hoel L. Bowditch, Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Division of Ser. No. 789,453, Jan. 7, 1969, Pat. No. 3,566,899. This application July 15, 1970, Ser. No. 62,748

Int. Cl. F16f 1/22

U.S. Cl. 267—159 **7 Claims**



A pneumatic relay wherein a diaphragm is used as a valve actuator, with the diaphragm formed as a sandwich of a flexible metal sheet with relieving slots therethrough and a rubber sheet as a covering seal for the slots, and in which a leaf spring structure is provided as an adjustable zero bias device for the relay valve, the spring being an H form with the H leg ends grounded and tongues between the H legs, one tongue having grounded adjustment means and another tongue as the spring force applicator to the relay valve as a bias therefor, this device, further, having an adjustable valve seat in the relay valve.

3,758,094

FRICTION CLUTCHES AND TO ENGAGING LOAD APPLYING SPRING MEANS FOR SUCH FRICTION CLUTCHES

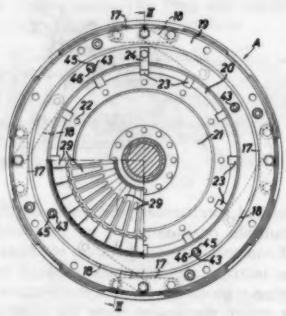
Frederick Crutchley, and David Hindley, both of Leamington Spa, Warwickshire, England, assignors to Automotive Products Company Limited, Leamington Spa, Warwickshire, England

Filed Nov. 24, 1970, Ser. No. 92,336

Claims priority, application Great Britain, Dec. 3, 1969, 59,076/69; May 19, 1970, 24,272/70

Int. Cl. F16f *1/26*

U.S. Cl. 267—162 **4 Claims**



This invention relates to single or twin plate friction clutches in which the clutch spring is a Belleville spring and a number of levers are provided to release the clutch engaging load. The radially inner edge of the Belleville spring define a number of circumferentially spaced recesses so that the range of axial positions of the Belleville spring portion engaged with the pressure plate, over which an adequate axial load is applied by the spring, is greater than if that Belleville spring had a continuous circular edge. The specification describes forms of such recesses and suitable parts of the Belleville spring for engagement with the pressure plate. Conveniently the levers are clamped between the Belleville spring and the pressure plate.

3,758,095

DAMPED SPRING

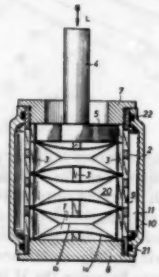
Otto Mulhauser, Berghausen, Germany, assignor to Gesellschaft fur Kernforschung mbH, Karlsruhe, Germany

Filed July 26, 1971, Ser. No. 165,952

Claims priority, application Germany, Aug. 18, 1970, P 20 40 915.8

Int. Cl. F16f *1/32*

U.S. Cl. 267—165 **12 Claims**



A damping spring including a casing defining an interior space filled with a damping medium and individually stacked dished plates. The plates are subdivided into an even number of sectors and are supported along their edges. A slide valve cooperates with at least one aperture in the casing to vary the cross section thereof so as to allow variation of the damping characteristics of the spring.

3,758,096

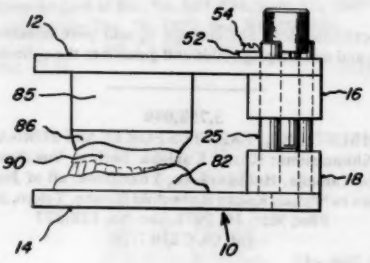
METHOD AND APPARATUS FOR REPAIRING DENTURES

John S. Tregillis, 825 Dale St. South, and Lester E. Schuft, Rt. 2, both of Hutchinson, Mich.

Filed Dec. 28, 1970, Ser. No. 101,451

Int. Cl. A61c *9/00*; B23g *3/06*; B25b *1/02*

U.S. Cl. 269—7 **5 Claims**



A method and apparatus for repairing, relining and duplicating dentures and in particular for compensating for loss of vertical dimension in a patient's mouth is disclosed herein. The apparatus or fixture provides a means for holding a denture in contact with an impression material and separating the impression material from the denture to provide an exact spacing therebetween corresponding to the amount of material to be added to compensate for lost vertical dimension by a patient. A buildup of the denture in terms of temporary material facilitates remolding of the existing denture to add the desired material for loss compensation.

3,758,097

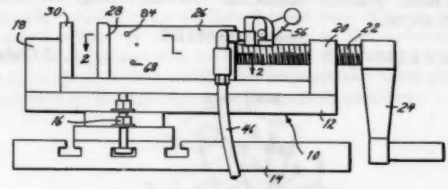
AUTOMATIC VISE JAW

Paul S. Newswanger, 1401 Vermont Ave., Lancaster, Pa.

Filed June 25, 1971, Ser. No. 158,550

Int. Cl. B25b *1/08*, *1/18*

U.S. Cl. 269—27 **9 Claims**



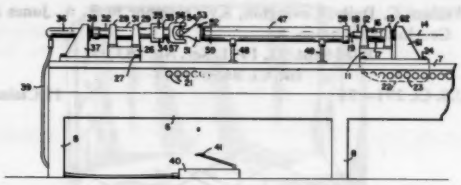
An automatic vise jaw wherein a movable jaw is urged toward a fixed vise jaw by means of crank operated screw. The movable jaw is equipped with integral air cylinders to actuate a pressure plate for work holding purposes. The air cylinders function piston rods which operatively cooperate with the pressure plate by means of linkage interposed therebetween. By employing suitable leverage, the linkage serves to substantially increase the ratio of pressure applied at the air cylinders and to rapidly apply the increased pressure at the pressure plate.

3,758,098

MACHINE FOR WORKING ON DRIVE SHAFTS

Mark Vrilakas, P.O. Box 561, West Sacramento, Calif.

Filed Sept. 20, 1971, Ser. No. 181,752
Int. Cl. B23k 37/04
U.S. Cl. 269—55 4 Claims



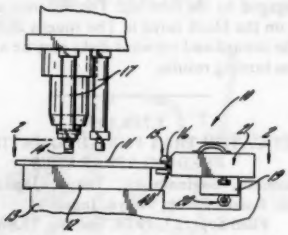
Particularly for working on automotive drive shafts including universal joints is a machine including a frame on which are mounted a headstock and a tailstock movable along a common axis toward and away from each other, the tailstock being lockable in any of several selected positions and carrying a tail centering device for supporting one end of a drive shaft. Also on the frame is a headstock having a head centering device mounted therein for rotation about the same axis and for movement along such axis toward and away from the tailstock. Also mounted on the frame is a hydraulic jack structure for moving the head centering device toward the tail centering device, the latter being particularly backed up by a stop for limiting axial movement of the tail centering device.

3,758,099

CLAMP WITH WORKPIECE LOCATOR

William B. Scott, Steward, Ill., assignor to W. A. Whitney Corp., Rockford, Ill.

Filed July 29, 1971, Ser. No. 167,269
Int. Cl. B23q 3/18; B26d 7/16
U.S. Cl. 269—58 4 Claims



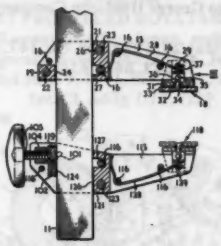
An apparatus for locating and holding a workpiece of sheet material on a punch press bed in an exact predetermined edgewise position relative to a punch tool. The apparatus includes two spaced clamps mounted on an elongated slide which is movable incrementally to draw the workpiece beneath the punch tool for punching. When the slide reaches its natural limits of movement, temporary holders are used to clamp the workpiece on the bed in the edgewise position before the clamps release the workpiece to allow the slide to be slid back along the edge of the workpiece to reposition the clamps on the workpiece for further incremental movement. To assure that the workpiece is located in the exact edgewise position when first placed within the clamps, locators are movable with the slide and are mounted on the opposite sides of each clamp so as to extend outwardly into position to be engaged by the edge of the workpiece when the latter is placed in the clamps. The locators are retractable away from the edge of the workpiece once the workpiece is clamped in position so that the locators will not be scored and worn by the edge of the workpiece when the clamps are repositioned.

3,758,100

CLAMPING DEVICES

David John Taylor, 6 Overtons Close, and Aris Mednis, 8 Overtons Close, both of Redford Semele, Leamington Spa, England

Filed Mar. 16, 1971, Ser. No. 124,882
Claims priority, application Great Britain, Mar. 23, 1970, 14,009/70; Oct. 1, 1970, 46,670/70
Int. Cl. B25b 1/02, 1/10
U.S. Cl. 269—203 7 Claims



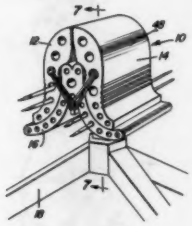
A clamping device comprising two clamping jaws each slidable along a shank to a desired clamping location on the shank and then engaging with the shank and exerting a clamping force which is reacted through the shank. Each clamping jaw comprises an elongated jaw member having a shank receiving aperture at one end portion thereof and a clamping pad at the other end portion thereof for exerting the clamping force on a workpiece. Each jaw member carries a first contact pad for frictional engagement with a side of the shank adjacent the clamping pad and a second contact pad for frictional engagement with the side of the shank remote from the clamping pad at a position along the shank in the direction of said clamping force from the first clamping pad. The contact pads have a surface for engaging the shank incorporating projections of substantial crest radius such that in use the projections elastically deform the surface of the shank into depressions corresponding to the crests of the projections. At least one clamping jaw is also provided with means for moving its second contact pad in a direction towards the shank to thereby tend to pivot the jaw member to produce the clamping force on the workpiece.

3,758,101

VISE APPARATUS

Windell C. Sewell, Lakewood, Colo., assignor to Fred D. Smith, Evergreen, and Robert L. Smith, Golden, both of Colo., a part interest to each.

Filed June 23, 1971, Ser. No. 155,702
Int. Cl. B25b 1/24, 5/16
U.S. Cl. 269—254 R 18 Claims



A multi-purpose vise apparatus for hobbiests and the like comprised of a mounting base having a pair of curved, oppositely inclined leg portions, a pair of reversible vise jaws with curved mounting surfaces and a plurality of gripping surfaces, and elastic means fastening each of the vise jaws to the mounting base for independent sliding and rocking movement

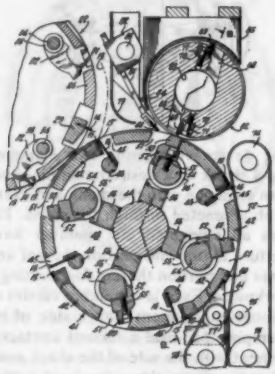
between a plurality of positions to readily accept a variety of objects of different sizes and shapes. The vise jaws and mounting base may be provided with a plurality of horizontal bores or apertures which may be used for storage of paint brushes and similar hobbiest implements.

3,758,102

SIGNATURE CUTTING AND TRIMMING APPARATUS

Robert Munn, Monsey, and Albert Tiso, Scarsdale, both of N.Y., assignors to George Hantscho Company, Inc., Mt. Vernon, N.Y.

Filed May 28, 1971, Ser. No. 147,754
Int. Cl. B65h *45/00*
U.S. Cl. 270—69 14 Claims



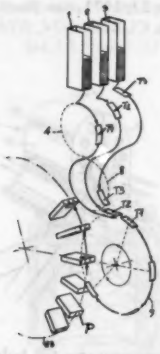
Apparatus for use with printing presses to cut, fold and trim each individual signature and deliver the completely trimmed signature to succeeding folding or stacking stations.

3,758,103

LABELLING DEVICE

Goffredo Gianese, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed Mar. 13, 1972, Ser. No. 234,101
Claims priority, application Italy, Mar. 11, 1971, 12554 A/71
Int. Cl. B65h *5/00, 5/26*
U.S. Cl. 271—4 6 Claims



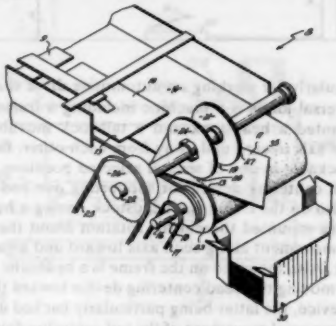
Apparatus for providing labels or the like at an application station, which comprises a plurality of label supply units mounted in spaced relationship with each other, means for withdrawing labels from the supply units, means for placing the labels with-drawn from the spaced supply units in alignment with each other, and means for receiving the aligned labels and delivering them seriatim to an application station.

3,758,104

TURNING APPARATUS

William C. Daily, Covington, Ky., assignor to R. A. Jones & Co., Inc., Covington, Ky.

Filed Sept. 23, 1971, Ser. No. 183,031
Int. Cl. B65h *29/14*
U.S. Cl. 271—75 11 Claims



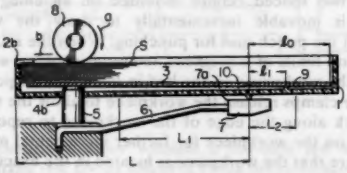
Apparatus for turning carton blanks or the like comprising a conveyor and means forming two nips generally transverse to the conveyor. An inward free-wheeling disk forms a blank engaging nip with the conveyor for maintaining a portion of the carton at conveyor velocity and an outward disk forms a second blank engaging nip with a third free-wheeling disk located beneath it. The outward disk is driven at a circumferential velocity which is greater than the conveyor velocity so as to drive a portion of a blank at greater speed than the portion engaged by the first nip. The difference of the velocities acting on the blank turns it. The speeds and axial distance between the inward and outward disks may be adjusted to provide various turning results.

3,758,105

SHEET CATCH TRAY FOR AUTOMATIC SHEET FEEDING APPARATUS

Toyoo Okamoto, Suginami-ku, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Sept. 17, 1970, Ser. No. 73,083
Claims priority, application Japan, Oct. 22, 1969, 44/84546
Int. Cl. B65h *1/04*
U.S. Cl. 271—61 2 Claims



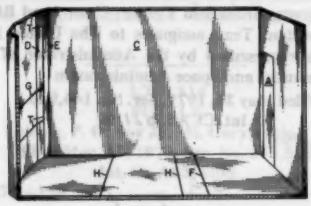
The present invention relates to a sheet catch tray for an automatic sheet feeding apparatus mounted to a feeder portion of a reproduction apparatus or a printing machine, said sheet catch tray holding a stack of photosensitive sheets or printing paper and feeding sheets one by one continuously in cooperation with said automatic sheet feeding apparatus.

3,758,106

ENCLOSED GAME OR SPORT FACILITY

Anthony E. Liebig, 432 Denslow Ave., Los Angeles, Calif.

Filed Sept. 28, 1971, Ser. No. 184,341
Int. Cl. A63b 71/04
U.S. Cl. 272—3 1 Claim



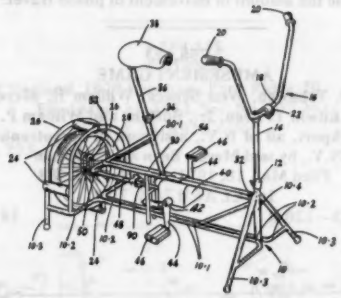
A game or sport facility in the form of an enclosed court which, because of its shape and arrangement, permits the playing by two persons of a vigorous and strenuous competitive racket and ball game or sport (adapted to the facility) within an area considerably smaller than has heretofore been possible. The enclosure for the court includes upstanding walls on all sides thereof wherein one wall, which is designated as the front wall of the facility, is adjoined by four obtusely angled, narrow, upstanding wall sections with two of the sections on each side thereof. These sections preclude rebounds of balls off of the aforementioned front wall which would be too difficult for a competitor to return against the wall in the limited playing area of the game facility.

3,758,107

BICYCLE-TYPE EXERCISING APPARATUS WITH ECCENTRIC MOUNTING

Jacobus Daniel Potgieter, 948 Crots St., Rietfontein, Pretoria, Transvaal Province, South Africa

Filed Oct. 26, 1970, Ser. No. 83,872
Claims priority, application South Africa, Oct. 24, 1969, 697499
Int. Cl. A63b 23/04
U.S. Cl. 272—73 4 Claims



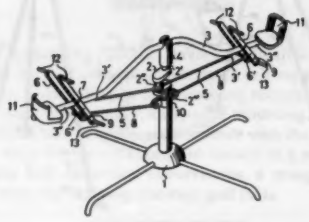
The invention is directed to a stationary exercising apparatus of a cycle type whereby a person is cyclically raised and lowered causing his weight to produce a restraint on his pedalling. The apparatus comprises a frame on a base structure for tilting movement in upward and forward, and also sideward directions. The base structure has fixed handles mounted at the forward end thereof to be grasped by a user of the apparatus. The frame has a saddle for a user to sit on and a pair of connected pedals to be driven by the user. Additionally, the frame is connected to the forward end of the base structure by a universal type connection and is further supported at its rearward end on a shaft driven by the pedals, wherein the shaft is adjustably attached at an eccentric position to a vertically and transversely disposed circular member which in turn is rotatably supported on the rearward portion of the base structure. The adjustable feature of the shaft attachment comprises an elongated slot in the circular member radially extending from the center thereof, wherein the shaft is adjustably mounted at any selected position along the length of the slot. In this manner, a user of the apparatus may experience varying degrees of being raised and lowered when exercising with the pedals depending on where the shaft is positioned. Arms extending from the frame and engageably associated with the base structure control the extent of sideward tilting of the frame.

3,758,108

OCCUPANT PROPELLED ROTATABLE SEESAW

Minoru Tada, Kawaguchi-City, Japan, assignor to Kabushiki Kaisha Chuogoraku Kenkyusha, Tokyo, Japan

Filed June 9, 1971, Ser. No. 151,272
Int. Cl. A63g 1/12, 1/32
U.S. Cl. 272—30 1 Claim



A turning seesaw which has a fulcrum unit having an upper shaft, an eccentric shaft and a lower shaft on a support. A turning lateral rod is so secured to the upper shaft of the fulcrum as to allow elevational and horizontal turning. At least one upper connecting rod is engaged at one end with a portion of the turning lateral rod intermediate the fulcrum unit and its end, and engaged at the other end with the eccentric shaft of the fulcrum unit. Two pairs of handling rods are pivotally secured to both sides of the turning lateral rod so as to rotate along the axis of the turning lateral rod in a rocking fashion. Two lower connecting rods are each pivotally secured at one end to the lower end of the handling rod and pivotally secured at the other end to the lower shaft of the fulcrum unit, and two seats are mounted at both ends of the turning lateral rod.

3,758,109

VARIABLE WEIGHT EXERCISER

Martin Bender, 162 N. Alta Vista Dr., Los Angeles, Calif.

Filed Jan. 17, 1972, Ser. No. 218,156
Int. Cl. A63b 21/00
U.S. Cl. 272—84 11 Claims

A variable weight exerciser which has a primary elongated bar and one or more secondary elongated bars of lesser width

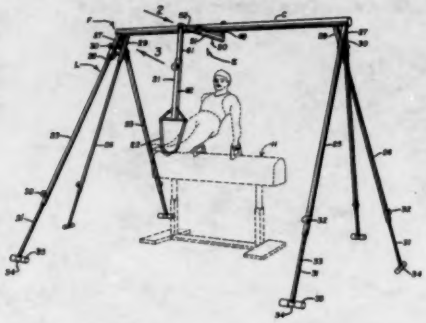
than the primary bar. The primary bar is adapted for insertion of the secondary elongated bars and an end cap is provided for securing the secondary bars within the primary bar.

3,758,110

GYMNASTIC TRAINING AID FOR A SIDE HORSE

Robert M. Fenner, 3200 S. Zuni St., Englewood, Colo., and Jack R. Harris, 1428 Teakwood, Salina, Kans.

Filed May 15, 1972, Ser. No. 253,329
Int. Cl. A63b *5/12, 69/00*
U.S. Cl. 272—64 8 Claims



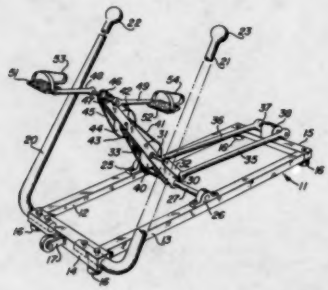
The invention disclosed herein is a gymnastic training aid for developing skill in performing high double circles on a side horse. The training aid includes a rigid frame adapted to be extended above a side horse. One end of a horizontally disposed swivel arm is pivotally mounted upon this frame above the side horse so the arm will cantilever from this pivoted mounting. A stirrup bar depends from the other outward end of the swivel arm to carry a leg sling. The swivel arm and stirrup bar are adjustable in length to enable the sling to be positioned to carry the legs of a gymnast on a side horse in a proper position for the practice of high double circles or the like.

3,758,111

SITU APPARATUS FOR PHYSICAL EXERCISE WITH PEDAL ACTION

Alexander Agamian, 1366 Kotenberg Ave., San Jose, Calif.

Filed May 3, 1971, Ser. No. 139,539
Int. Cl. A63b *21/00*
U.S. Cl. 272—73 10 Claims



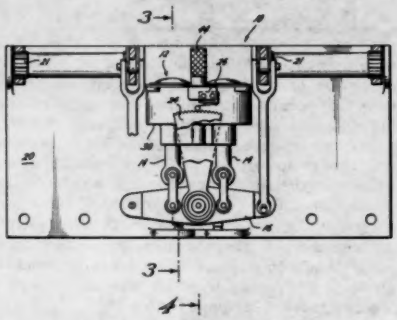
In situ apparatus for exercising in which an operator grips suitable handles and actuates pedals while the angle of the body of the operator relative to a stationary frame varies continuously during each cycle. An upstanding arm is pivotally mounted on the frame. The operator actuated pedals are located on one end of the arm. Suitable linkages connect the pedals with the frame so that actuation of the pedals causes the angle of the arm to vary continuously. This arm supports the user such that when the angle of the arm with respect to the frame varies continuously, the angle of the operator with respect to the frame also varies continuously.

3,758,112

FOOT PEDAL OPERATED FLUID TYPE EXERCISING DEVICE

Gerald W. Crum, Brookfield Center, Conn., and Richard J. Sauter, Houston, Tex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed May 26, 1971, Ser. No. 146,940
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 C 9 Claims



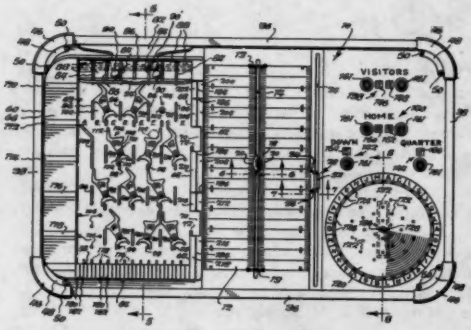
A foot pedal operated exercising device containing a dynamometer formed of a pair of cylinders each containing a piston. The pistons are linked to each other. The upper portions of the two cylinders are joined together by a common opening to provide a common fluid reservoir and each piston is provided with a one way check valve to maintain an adequate supply of working fluid. Fluid from the driven cylinder is transmitted to the other cylinder through separate constant force spring biased valves each valve takes the predominant portion of the pressure drop thereby providing a constant force hydraulic dynamometer. A device is provided to determine the amount of movement of piston travel.

3,758,113

AMUSEMENT GAME

Nicholas D. Trbovich, West Seneca; William H. Meyer, East Aurora; Edwin T. Bean, Jr., Buffalo, and William P. Robinson, Lockport, all of N.Y., assignors to Servotronics, Inc., Buffalo, N.Y., by said Meyer, Bean and Robinson

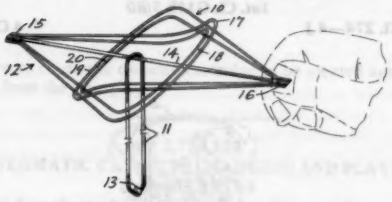
Filed Mar. 18, 1971, Ser. No. 125,588
Int. Cl. A63f *7/06, 7/14*
U.S. Cl. 273—120 R 14 Claims



Amusement game apparatus has an inclined panel along which ball members roll and on which a plurality of pivotal

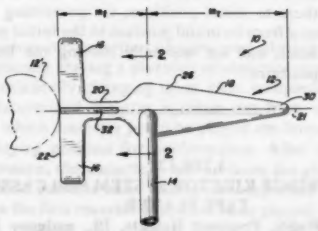
members are selectively oriented for interrupting the forward motion of ball members along first paths and operable when engaged by subsequent ball members to transfer the trapped members to second paths for movement therealong. The inclined panel is usable with a game board having a simulated playing field thereon. Indicia provided on the panel and the board bear information pertaining to play results and situations, and a spring-activated random selector is used therewith.

3,758,114
PUZZLE
Robert L. Ludwig, P. O. Box 26, Mt. Cory, Ohio
Filed Mar. 17, 1972, Ser. No. 235,528
Int. Cl. A63f *9/08*
U.S. Cl. 273—159 **7 Claims**



A puzzle including a flexible loop and a device comprising a rigid rod with first and second resilient members attached to one rod end to form first and second loops and third and fourth resilient members attached to the other rod end to form third and fourth loops. The first and third members are interlaced and the second and fourth members are interlaced. The puzzle is worked by following a program alternately to place the flexible loop on the rod and to remove the flexible loop from the rod.

3,758,115
PUTTER
Edward Hoglund, 1020 Lois Ave., Park Ridge, Ill.
Filed Mar. 23, 1972, Ser. No. 237,361
Int. Cl. A63b *53/04*
U.S. Cl. 273—164 **7 Claims**

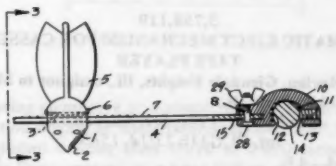


A golf putter in which there is an enlarged somewhat elongate body and a transverse planar head connected by a narrow neck portion, the weight of the putter being balanced at least front and rear of the shaft connection and preferably laterally also, the shaft being connected substantially at the center of gravity of the putter.

3,758,116
GOLF PRACTICING DEVICE
Julius J. Pieronek, 3300 99th St., Kenosha, Wis.
Filed Mar. 27, 1972, Ser. No. 238,171
Int. Cl. A63b *69/36*
U.S. Cl. 273—181 A **9 Claims**

A golf practicing device having a flexible back drop member formed of carpeting material; a self supporting frame arranged to avoid tilting; a ball receiving receptacle functioning in the nature of a target; a rim-type mounting arrangement with a substantially straight portion flush with the front face of the back drop for the receptacle to reduce to a minimum any undesirable ball deflection occurrences; a trough formed in the back drop for trapping aberrant golf balls.

3,758,117
GOLF SWING TRAINING DEVICE
John G. Harrison, 371 W. "J" St., Benicia, Calif.
Continuation-in-part of Ser. No. 143,916, May 17, 1971, abandoned. This application June 7, 1972, Ser. No. 260,399
Int. Cl. A63b *69/36*
U.S. Cl. 273—194 B **8 Claims**

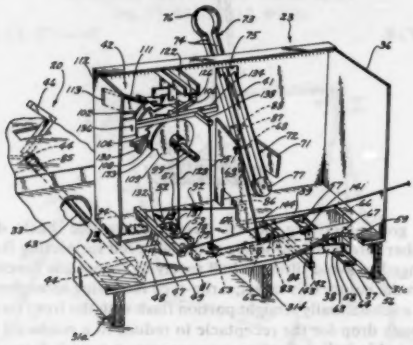


The inertia attachment includes an arm on which is a weight adjustable longitudinally of the arm and a clamp adapted to attach the arm to the shaft of a golf club which requires follow-through when swung; the weight has tail fins and is shaped to be directional in the direction into which the shaft is swung and is registerable with the head of the golf club or the like; the arm is pivoted on the clamp so as to be adjustable from an out of the way position parallel with the shaft toward and above the club head. In one embodiment, the weight may include a rotatable propeller mounted in a recess between the tail fins. In another embodiment, the weight is shiftable along a shaft and compresses a spring as the weight moves rearwardly. The weight includes a passage through which the arm extends, and the weight may be secured in various positions along the length of the arm by the provision of a spring clip located in the passage. The spring clip is adapted to selectively engage grooves provided along the length of the arm.

3,758,118
GOLF BALL PRACTICE DRIVING APPARATUS
Leland J. Willcox, Cambridge, Iowa
Filed Aug. 26, 1971, Ser. No. 175,271
Int. Cl. A63b *57/00*
U.S. Cl. 273—201 **5 Claims**

The apparatus has a ground support platform with an upright tee member accessible to a golfer standing on one end

of the platform. The other end of the platfrom carries a ball receiving and delivering mechanism that includes an up and down pivoted ball guiding arm. In response to a single actuation of a foot operated member at the golfer's end of the platform, a single ball is released from a container and supplied to the guide arm which directs the released ball downwardly onto the tee member. On release of the foot operated member the guide arm is movable upwardly away from the tee member to



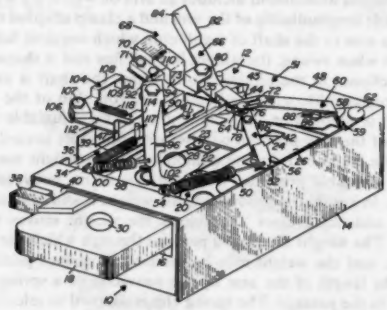
permit full accessibility to the tee ball for driving purposes. A coin operated mechanism presets the number of balls to be driven during one driving round, and after such preset number of balls has been driven, the apparatus is rendered inoperative regardless of any later actuation of the foot operated member. A yardage indicating device may be associated with the apparatus for simulating competitive playing for confined or limited areas such as hotel and motel grounds, or indoor recreational rooms and the like.

3,758,119

AUTOMATIC EJECT MECHANISM FOR CASSETTE TAPE PLAYER

Alfred R. Harlan, Glendale Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 1, 1971, Ser. No. 158,752
Int. Cl. G11b *23/14, 15/24*
U.S. Cl. 274—4 E **4 Claims**



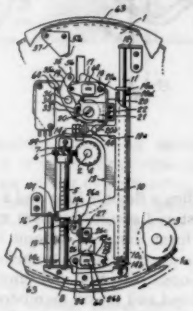
Automatic eject apparatus for use in a cassette tape player includes a pivotal, spring biased lever arm movable to an eject-ready position upon operation of a manual actuator arm from a first to a second position for the purpose of moving a cassette into the play position in the tape player. The armature of a solenoid coupled to a latch arm engageable with the lever arm upon moving the latter to the eject-ready position, is magnetically held by a holding coil to maintain the lever arm in the eject-ready position. Removal of power from the holding coil unlatches the lever arm which in turn engages the actuator arm to move the cassette out of the play position. An overcenter spring connected to the latch arm aids in moving the solenoid armature into engagement with the holding coil and returning the armature and latch arm to their initial positions upon de-energization of the holding coil. A second, spring biased pivotal lever arm movable also from an unlatched to a latched position, ejects the cassette from the player upon removal of power from the latter.

3,758,120

SPIRAL TRACK MAGNETIC RECORDING AND REPRODUCING APPARATUS

Saburo Kato, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Apr. 13, 1970, Ser. No. 27,694
Claims priority, application Japan, Apr. 15, 1969, 44/29208
Int. Cl. G11b *5/80*
U.S. Cl. 274—4 J **4 Claims**



Spiral track magnetic recording and reproducing method and apparatus employing a pair of magnetic heads for simultaneous recording or playback by both, or for recording by one head while either recording or playing back by the other head. The two heads are movably disposed on a turntable in diametrically spaced apart relation and move radially inwardly and outwardly respectively along spiral tracks of a stationary magnetic sheet. Means are provided: for automatically stopping the heads when one approaches the other's track and for returning them to initial positions; for permitting one of the heads to move from its initial position to the initial position of the other head; and for manually moving the heads to desired radial positions.

3,758,121

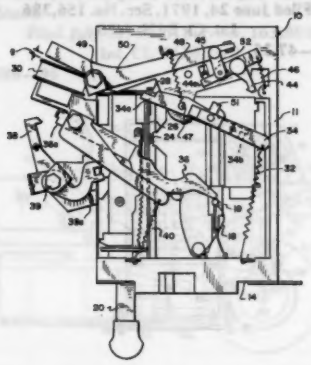
TAPE CARTRIDGE EJECTOR SYSTEM FOR CASSETTE TAPE PLAYER

Raymond I. Walsh, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 5, 1971, Ser. No. 169,432
Int. Cl. G11b *23/14, 15/24*
U.S. Cl. 274—4 E **5 Claims**

A tape cartridge ejector system for a cassette type tape player is equipped with means to automatically eject the cassette cartridge from the player upon de-energization of a low power solenoid. The de-energization of the solenoid can take place by any means as through the ignition switch, on-off switch, ejection switch, or power failure. The ejector ap-

paratus utilizes stored mechanical energy from one or more springs and therefore even operates upon complete power



failure to cause the cassette cartridge to be ejected automatically from the tape player.

3,758,122

AUTOMATIC CASSETTE CHANGING AND PLAYING APPARATUS

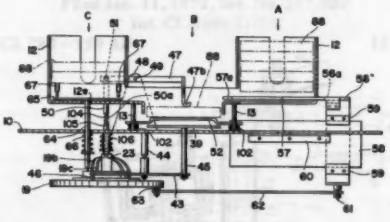
Yoichi Kawaharasaki, Kamakura City, Japan, assignor to Victor Company of Japan Limited, Kanagawa-ku, Yokohama City, Japan

Filed Nov. 3, 1970, Ser. No. 86,483

Claims priority, application Japan, Nov. 5, 1969, 44/88065; Nov. 5, 1969, 44/88066; Nov. 5, 1969, 44/88067

Int. Cl. G11b *23/12*

U.S. Cl. 274—4 F **6 Claims**



An automatic cassette changing and playing apparatus for automatically playing a plurality of cassettes one after another by automatically changing them after completion of playing. A predetermined cassette is taken out from a first cassette case in which cassettes yet to be played are housed and moved to a playing position for performance. After completion of performance, the cassette is moved from the playing position to a second cassette case. This cycle is repeated till all the cassettes in the first cassette case have been played.

3,758,123

OMEGA SEAL

Kazimierz T. Ksieski, Inglewood, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Feb. 29, 1970, Ser. No. 12,544

Int. Cl. F16j *15/08*

U.S. Cl. 277—206 **7 Claims**

This disclosure relates to a seal of omega cross sectional shape having a middle portion or central loop which is reinforced by being radially corrugated thereby providing a higher

elastic deflection and a higher recovery than a conventional omega seal of like dimensions.

3,758,124

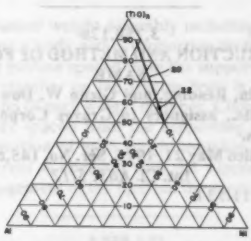
NICKEL-ALUMINUM-TITANIUM OXIDE FLAME-SPRAY COATING FOR BEARING AND PISTON RING MEMBER WEAR SURFACES

Carl S. Weinberger, Timonium, and William T. Hale, Freeland, both of Md., assignors to Koppers Company, Inc.

Continuation-in-part of Ser. No. 800,671, Feb. 9, 1969, abandoned. This application May 17, 1971, Ser. No. 144,193

Int. Cl. F16j *9/22*; B05b *5/20*

U.S. Cl. 277—224 **9 Claims**



A bearing member, e.g., a piston ring, for use in an internal combustion engine at temperatures up to 1,200° F having a wear-resistant coating from 0.010 to 0.020 inches finished thickness flame-sprayed on a wear surface thereof, such coating, before spraying, preferably consisting of an admixture of 34.4 parts by weight of elemental nickel particles jacketed with 8.6 parts by weight of elemental aluminum with the balance being 57 parts by weight of titanium dioxide, such particles sized to pass through a 120 mesh screen but not through a 325 mesh screen.

3,758,125

TOOL HOLDING DEVICE

Donald E. Cornelia, 115 Orchard Dr., St. Clairsville, Ohio

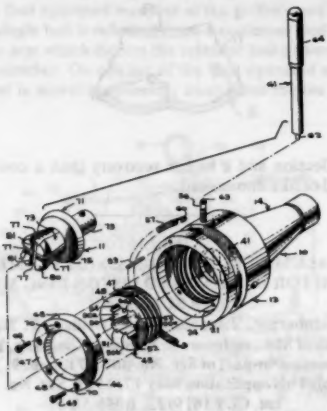
Filed Oct. 21, 1971, Ser. No. 191,241

Int. Cl. B23b *31/04*

U.S. Cl. 279—103 **30 Claims**

A tool holding device mountable on the spindle of a machine tool generally including a tool holder support mountable on the spindle for rotation therewith, the tool holder support having a socket disposed axially when the tool holder support is mounted on the spindle, a tool holder having a protruding portion received within the socket of the tool holder support for mounting the tool holder on the tool holder support, the tool holder having means for mounting a tool thereon, the tool holder and tool holder support having means operatively engageable when the tool holder is mounted on the tool holder support, for transmitting torque therebetween, and the tool holder support and the protruding portion of the tool holder having relatively movable portions provided with conical surface sections engageable in wedging relation when

the protruding portion is received within the socket of the tool holder support and the engageable portions are relatively displaced helically to lock said tool holder and tool holder support together.

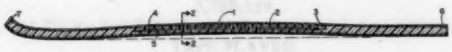


3,758,126

SKI CONSTRUCTION AND METHOD OF FORMING THE SAME

John C. Zemlin, Reading, and Glenn W. Dow, Newburyport, both of Mass., assignors to Graves Corporation, Newburyport, Mass.

Filed May 21, 1971, Ser. No. 145,619
Int. Cl. A63c 5/12
U.S. Cl. 280—11.13 L **8 Claims**



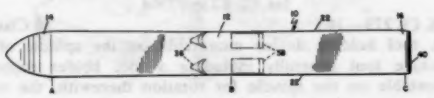
A multi-layer ski that changes stiffness automatically responsive to snow temperature. The ski has an inner layer, a bottom layer and an outer layer on the top and side surfaces. The outer layer is formed from an elastomer, preferably a polyurethane having a thermal expansion coefficient between about 200 and 300 in/in/°C$\times 10^{-6}$

3,758,127

SINGLE SNOW SKI

Michael D. Doyle, 1002 Hermes St., Leucadia, Calif., and William L. Bahne, Jr., 128 Daphne St., Leucadia, Calif.

Filed May 6, 1971, Ser. No. 140,679
Int. Cl. A63c 5/00
U.S. Cl. 280—11.13 S **6 Claims**



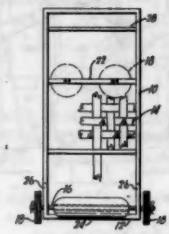
A snow ski of sufficient width to hold both feet in close side by side position in conventional bindings or boot retainers. The ski has a stiff central body portion, with a flexible tail and an even more flexible nose or tip, and a minimum bottom camber. The relationship of the stiffness and flexibility is important to the performance of the ski. Advantages of the snow ski are extreme maneuverability, good pivot turn ability, controlled turns at all speeds and good support on powder snow due to the large surface area.

3,758,128

COMBINED BEACH CHAIR AND SHOPPING CART

Lauri Stenwall, 28 White Ter., Ramsey, N.J.

Filed June 24, 1971, Ser. No. 156,386
Int. Cl. B62b 1/20
U.S. Cl. 280—47.25 **4 Claims**



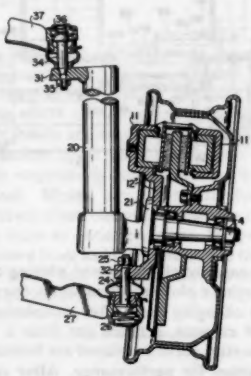
A device which can be used either as a beach chair or a beach, shopping and laundry cart comprising an open frame having vertical and horizontal sections covered with webbing and having means for detachably storing packages to be transported.

3,758,129

SUSPENSION SYSTEM FOR VEHICLES

Masakazu Ishikawa; Jyuichi Shibatani, and Masanao Shiomi, all of Aichiken, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

No Drawing. Filed Feb. 3, 1971, Ser. No. 112,236
Claims priority, application Japan, Feb. 18, 1970, 45/13427
Int. Cl. B62d 7/14, 7/18
U.S. Cl. 280—96.1 **4 Claims**



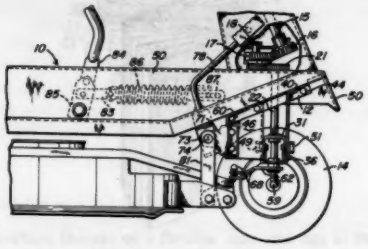
In a ball-joint type front-wheel suspension system, a disc wheel is supported in a vertically oscillatable manner by a knuckle and a spindle connected to the vehicle body. A brake supporting plate is secured to a flange of the spindle, or to the mounting portion of the knuckle in the case of a front wheel drive. A caliper of a disc brake is formed integrally with the brake supporting plate at one side thereof. A lower mounting seat is formed integrally with the brake supporting plate at the other side thereof. By way of the lower mounting seat and a ball joint or a joint pin, a lower arm is installed so that steering of the wheel is possible.

3,758,130

RIDING MOWER

Robert B. Mead, Wilmington, Ohio, assignor to Boise Cascade, Boise, Idaho

Filed July 19, 1971, Ser. No. 163,881
Int. Cl. B62d 7/10
U.S. Cl. 280—96 11 Claims



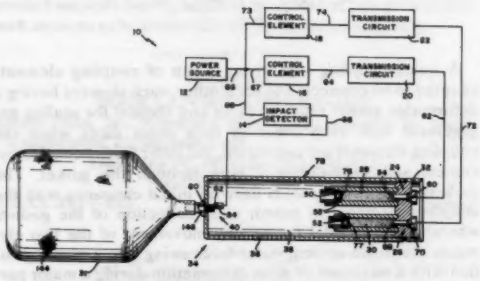
A front end suspension and steering system for a ground traversing vehicle providing a deck elevated relatively to ground level. A beam-like wheel support member in an underlying relation to the deck is capable of relative rocking motion in a transverse plane and carries spaced apart wheel axles. A steering mechanism accessible from above the deck connects to the wheel axles for rotary adjustment thereof. The steering mechanism incorporates universal means enabling rocking movement of the support member responsive to changes in terrain in any position of angular adjustment of the wheel axles.

3,758,131

INFLATION APPARATUS FOR SAFETY DEVICE

Robert L. Stephenson, Sterling Heights, and Donald G. Radke, Rochester, both of Mich., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Jan. 11, 1972, Ser. No. 217,052
Int. Cl. B60r 21/08
U.S. Cl. 280—150 AB 14 Claims



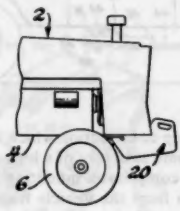
Safety apparatus disposed within a motor vehicle subject to impact for transmitting an electrical current from a power source to a gas releasing means connected to a gas containing portion of a gas source during a fixed time interval and to a plurality of gas generating charges within a gas generating portion of the gas source during successive time intervals at least two of which are caused to vary in inverse proportion to the impact velocity of the vehicle by means differently responsive to the impact velocity. Pressurized gas is released from the gas containing portion upon receipt of the electrical current by the gas releasing means. Gas generated by each charge receiving an electrical current enters the gas containing portion and admixes with the pressurized gas therein. As a result, the combined pressurized and generated gases pass into a bag, which inflates during a controlled time interval varying inversely with the impact velocity to a controlled pressure varying directly with the impact velocity.

3,758,132

TRACTOR COUNTER WEIGHT ASSEMBLY

Lee Eugene Elfes, Bloomfield Hills, and Leo John Lorenz, Farmington, both of Mich., assignors to Massey-Ferguson, Inc., Detroit, Mich.

Filed May 7, 1971, Ser. No. 141,123
Int. Cl. B60r 27/00
U.S. Cl. 280—150 E 16 Claims



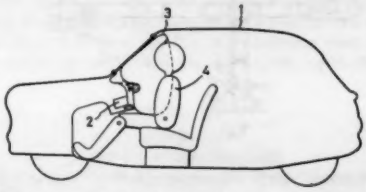
A tractor counter weight assembly including weight members each having a body with a supporting lip formed thereon and a clamping portion spaced from the supporting lip. A supporting frame member on the tractor body is engageable by the supporting lip of each weight member. Clamping means on the tractor body spaced from the supporting frame engages the clamping portion of each weight member when the supporting lip thereof is engaged with the supporting frame to prevent disengagement of the lip from the supporting frame.

3,758,133

SHOCK ABSORBING AIR BAG APPARATUS IN A MOTOR CAR

Motohiro Okada, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed June 3, 1971, Ser. No. 149,695
Claims priority, application Japan, June 4, 1970, 45/47581
Int. Cl. B60r 21/08
U.S. Cl. 280—150 AB 6 Claims



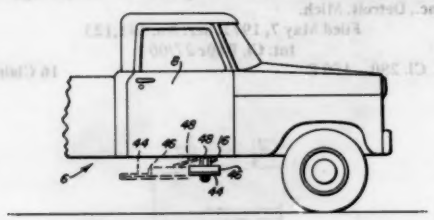
To prevent rebound of a driver from an inflated air bag in a motor vehicle at the time of a collision, a valve or escape device is coupled to the air bag to permit expulsion of air from the bag as the driver is thrust against the bag. The valve may be connected to an air chamber through which the bag is inflated by a gas generating apparatus, and the valve is subjected to operation by an actuation which acts to open the valve when the air bag presses against the actuator upon impact of the driver with the air bag. The valve may also be formed by a thin portion of the air bag which is pressed against a cutter when the driver impacts against the air bag whereby the bag is cut and the air can escape.

3,758,134

BREAKAWAY STEP FOR HIGH-CLEARANCE VEHICLES

George E. Stewart, R.F.D. 1, Hamilton, Kans.

Filed Oct. 18, 1971, Ser. No. 189,961
Int. Cl. B60r 3/02
U.S. Cl. 280—163 2 Claims



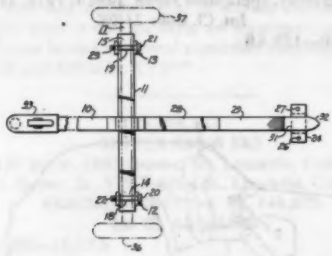
A breakaway step construction which lends itself to reliably safe use on the frame structure of a high-clearance wheel supported vehicle. It comprises a mounting bracket supported in a vertical position from the vehicle frame, said bracket supporting the a horizontal arm. An ample but suitably small step is fixedly mounted on an outward end of the arm. Novel means serves to pivotally mount the inward end of the arm on the bracket in a manner to permit the arm and step to swing through an arcuate path in the event the step strikes an object while the vehicle is moving. Pressure responsive means fixedly joins the inner pivoted end of the arm to the bracket. It functions to retain the arm and step in an outstanding normally accessible position and permits the same to swing and retract to an out-of-the-way position, whenever necessary or desired.

3,758,135

AUTOMOBILE TOW BAR

August A. Kniff, 137 S. Eucla, San Dimas, Calif.

Filed June 21, 1972, Ser. No. 264,766
Int. Cl. B60p 3/06; B60d 1/14
U.S. Cl. 280—402 11 Claims



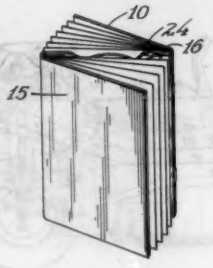
An automobile tow bar for rear-engine vehicles which comprises a central member having an offset area that permits slipping the tow bar under a front axle area into a clip fixed to the center of the frame of an automobile. A cross member is fixed to the longitudinal central member, and the cross member has clevis members which can nest the torsion bar and axle assemblies of the front vehicle suspension to carry the weight of the front of the vehicle off the ground. The forward end of the central longitudinal shaft of the tow bar is equipped with linkage for attachment to a towing vehicle. Lifting the tow bar, to engage the tow vehicle's hitch, raises the front wheels of the towed vehicle from the ground and supports the weight of the towed vehicle on its torsion rod axle assembly, thus relieving other more critical parts from excessive strain.

3,758,136

DUPLEX BOOK

Reynolds Guyer, 1060 33rd Ave. S.E., Minneapolis, Minn.

Filed Nov. 26, 1971, Ser. No. 202,262
Int. Cl. B42d 1/00, 3/12
U.S. Cl. 281—16 4 Claims



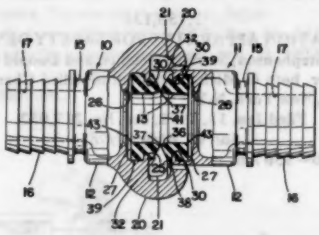
Two page cover member each having one cover member secured in face contact. A pocket for receiving a disc record is provided between the attached cover members.

3,758,137

QUICK DISCONNECT COUPLING

Sydney L. Kershaw, South Euclid, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Nov. 3, 1971, Ser. No. 195,096
Int. Cl. B60d 1/08
U.S. Cl. 285—70 6 Claims



A quick coupling comprising a pair of coupling elements adapted to be connected to each other, each element having a deformable gasket retained at an end thereof for sealing engagement with each other at their outer faces when the coupling elements are connected, the outer faces being frusto-conical and surrounding a bore through the gasket. The gaskets at their inner ends have an initial clearance with the coupling elements to permit axial deflection of the gaskets whereby during axial connecting movement of the two elements the frusto-conical outer faces swing into a planar position with a minimum of mass deformation during a major part of the connecting movement and with the gasket inner ends engaging walls of the coupling elements near the completion of the connecting movement whereby sufficient mass deformation of the gaskets occurs to increase the sealing contact between the gaskets and to ensure adequate resistance to disconnect movement of the elements.

3,758,138

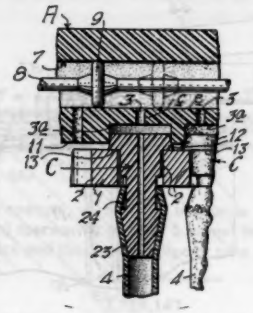
TUBE CONNECTION FOR FLUID HANDLING APPARATUS

Richard J. Roseman, 72 Stafford Rd., Colonia, N.J.

Filed Oct. 21, 1971, Ser. No. 191,245
Int. Cl. F16l 3/04, 5/00
U.S. Cl. 285—158 1 Claim

In fluid handling apparatus, a block has a chamber and ports opening from said chamber through one side of the block, a

support plate has a hole alined with each port, a connector for a flexible tube is located in each hole and is formed at one end



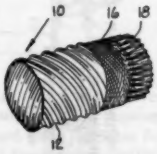
for connection thereto of a flexible tube and has at its other end a head clamped between said support plate and said side of the block with a fluid-tight joint.

3,758,139

CONNECTION ENDS ON DUCT OR CONDUIT SECTION

Robert H. Meserole, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Division of Ser. No. 88,816, Nov. 12, 1970, Pat. No. 3,708,867.
This application Sept. 8, 1972, Ser. No. 287,372
Int. Cl. F16l *25/00, 35/00*
U.S. Cl. 285—332 2 Claims



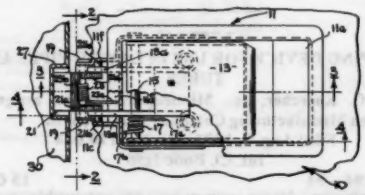
A method of reforming ends of tubular sheet metal duct or conduit sections having helically grooved walls so as to enable such sections to be connected in end-to-end relationship.

3,758,140

DOOR LATCHING MECHANISM

Ernest Prete, Jr., Woodland Hills, Calif., assignor to Ancra Corporation, El Segundo, Calif.

Filed May 24, 1972, Ser. No. 256,412
Int. Cl. E05c *3/08*
U.S. Cl. 292—223 11 Claims



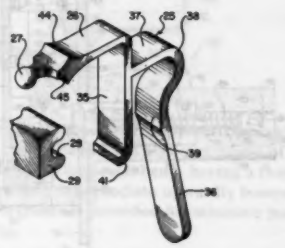
A door latching mechanism has a frame with a recessed portion in which a handle for operating the latching mechanism is pivotally mounted. A pair of arms extend from the frame, these arms pivotally supporting a bolt. Spring means are provided to urge the bolt towards its latching position. Actuator means is provided on the handle which extends therefrom and engages projections which extend from the bolt. When the handle is rotatably drawn out of the recessed portion of the frame, the actuator means drives against the bolt projections to rotatably withdraw the bolt away from the striker plate, thereby unlatching the door with which the mechanism is used. If the bolt should inadvertently become jammed in its unlatched position, a flagging signal is provided indicating the failure of the bolt to properly latch.

3,758,141

DOOR CHECK

Morris Weinberger, 387 Amsterdam, New York, N.Y.

Filed Dec. 16, 1970, Ser. No. 98,834
Int. Cl. E05c *17/04*
U.S. Cl. 292—262 14 Claims



A door check is provided with a laterally extending nose portion and depending clamping portions adapted to engage the upper edge of a door and have easy and free contact with the side faces of the door and with one of the clamp portions having downwardly and outwardly extending handle permitting the grasping of the door check for the removal of the door check from the upper edge of the door for the placing of the same thereover. The opposing faces of the clamp portions are provided with rounded door face engaging surfaces having one form with laterally extending rows opposing one another. Also there is provided on the nose portion adjustable devices to alter the effective length of the nose portion so that an adjustment can be made without a change in the position of the door check upon the door. Certain other forms of the invention are adapted for use with spring biased doors to normally hold the doors in their closed positions and this door check mainly serving to hold the door open against the action of their springs. With one form of the invention the effective length of the forwardly extending nose portion can be altered from the rear of the door check without changing the position of the door check upon the door. With one form of the invention a velcro like retaining arrangement is used for the engagement of the nose end of the laterally extending nose portion with cooperating velcro like keeper located upon the door frame.

3,758,142

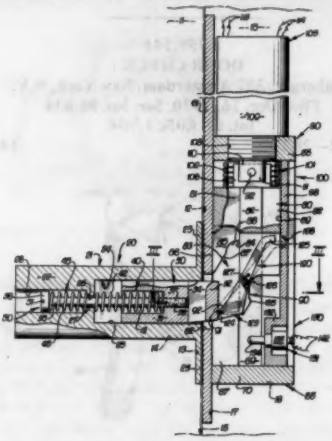
LOCK CONSTRUCTION

Klaus W. Gartner, 5711 Ravenspur Dr., Palos Verdes Peninsula, Calif.

Filed Aug. 6, 1971, Ser. No. 169,750
Int. Cl. E05c *1/08*
U.S. Cl. 292—254 10 Claims

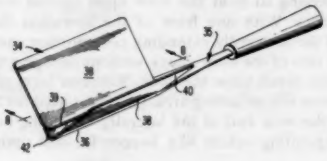
The lock, includes a door mounted striker assembly comprising a housing; a striker, movably mounted in the housing for movement between a flush position, a normally extended position, and an extreme extended position; an indented nose on the striker; opposed springs in the housing and engaging the striker for biasing the striker to the normally extended position; and a threaded screw for adjusting the location of the normally extended position relative the housing, and includes a jamb mounted striker plate assembly comprising a striker plate; a hollow housing mounted on the back of the striker plate; a cross bolt, movably mounted in the housing for move-

ment between retracted and protruding positions; a lug protruding from the cross bolt; oppositely acting spring and solenoid in the housing and engaging the cross bolt to move it between positions; a dog in the cross bolt for temporarily holding the cross bolt in the retracted position while the door is open; and a switch connected to a light and being operated by the cross bolt whereby the insertion of the nose of the striker



into the striker plate, moves the dog to release the cross bolt which is moved by the spring to the extended position while the lug thereof enters the identation to pull the striker to the extreme extended position for locking, with energizing of the solenoid returning the cross bolt to the retracted position to free the striker for being returned to the normally extended position so that opening of the door will move the striker to the flush position.

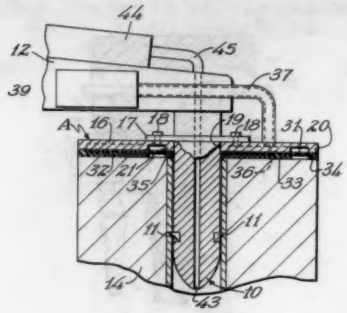
3,758,143
SPATULA
Joseph F. Godlewski, Gaithersburg, Md., assignor to Vincent K. McMahon, Gaithersbury, Md., a part interest
Filed Nov. 30, 1971, Ser. No. 203,368
Int. Cl. A47j *43/28*
U.S. Cl. 294—8 **7 Claims**



A spatula for lifting and turning food items on a grill or the like embodies a pair of spatula blades arranged substantially at right angles. A manipulating handle is secured to the blade structure and extends beyond one end thereof along a line parallel to the vertex of the dihedral angle formed by the blade. The construction of the spatula assists in the turning over of eggs, hamburgers and the like and tends to shield the user from splattering by hot grease. The device may also be used as a scoop for certain foods in particle form.

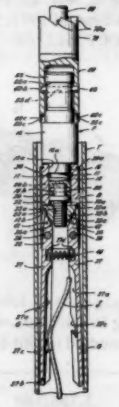
3,758,144
VACUUM CENTER LIFT
Herbert Francis Dalglish, 284 Cherokee Ave., St. Paul, Minn.
Filed Jan. 6, 1972, Ser. No. 215,760
Int. Cl. B66c *1/02*
U.S. Cl. 294—64 R **6 Claims**

An apparatus for lifting rolls of sheet material comprising a probe with expansible jaws for engaging the center of the roll of material in combination with a vacuum disc which prevents



roll of material from telescoping.

3,758,145
FISHING TOOL
Myron M. Kinley, 103 Maple Lane Ave., Chickasha, Okla.
Filed Feb. 23, 1972, Ser. No. 228,517
Int. Cl. E21b *31/12*
U.S. Cl. 294—86.29 **10 Claims**

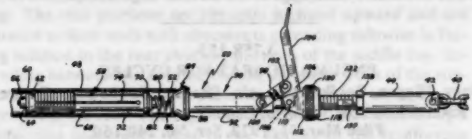


A fishing tool adapted to be lowered, raised and manipulated to retrieve cables, wirelines, tubing, tools or other fish or junk from a well, wherein means are provided to automatically release the gripping action on the fish when a predetermined gripping force is applied thereto for thereby preventing damage to the tool from the application of excess torque.

3,758,146
GRIPPING DEVICE FOR USE IN LAYING PIPES AND TUBES
William C. Kaercher, Jr., Minneapolis, Minn., assignor to Jacobsen Manufacturing Company, Racine, Wis.
Filed Aug. 9, 1971, Ser. No. 170,044
Int. Cl. B66c *1/56*
U.S. Cl. 294—94 **15 Claims**

The gripping device comprises an expansible mandrel mechanism, an over-center toggle mechanism, a coil spring between the mechanisms, and a flexible cable extending through both mechanisms as well as the interposed spring. The mandrel mechanism includes a plurality of resilient jaws, manual actuation of the toggle mechanism into its over-center position causing the cable to pull a cone in a direction to wedge the jaws outwardly against the interior of the pipe or tube to be buried. The toggle mechanism reacts against an ad-

justing nut so that the amount of cone movement, and hence the amount of jaw expansion, can be altered. The toggle



mechanism connects, via a chain, to a mole that is oscillated forwardly and rearwardly to form a tunnel through which the gripping device and the clamped pipe or tube is pulled.

3,758,147

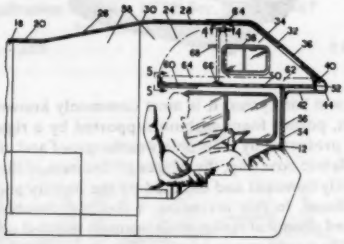
MOBILE UNIT WITH OVERHEAD COMPARTMENT

Maurice G. Burton, 1958 E. 70th South, Salt Lake City, Utah

Filed Nov. 30, 1971, Ser. No. 203,141

Int. Cl. B60p *3/38*

U.S. Cl. 296—23 R **6 Claims**



A mobile home unit having an overhead compartment therein including a hump portion disposed above the driver's cab with a foldable bed means therein forming the bottom of the compartment and having a streamline nosepiece member forming the front end of the compartment.

3,758,148

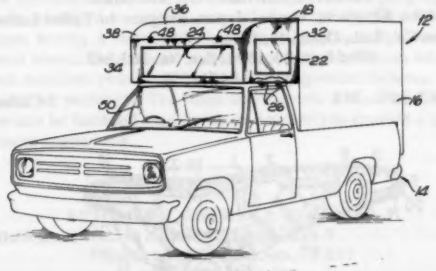
CONVERTIBLE CAMPER

Julia A. Sowma, 1947 Vista Del Mar, Hollywood, Calif.

Filed Jan. 24, 1972, Ser. No. 220,145

Int. Cl. B60p *3/32*

U.S. Cl. 296—23 MC **6 Claims**



A camper having enclosing walls and a roof which define an openable air compartment. A terminal portion is displaced with respect to the roof so as to expose the air compartment. The terminal portion may be releasably secured to the roof at one end and hinged at the other end so as to enable movement of the terminal portion with respect to the roof. The open-air compartment may be the cab-over portion of a camper. Moreover, the side walls of the compartment may also be made movable.

3,758,149

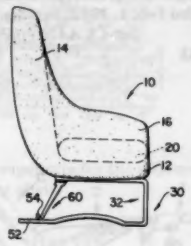
CHAIR WITH U-SHAPED WOODEN SUPPORT BEAMS

Harry G. Emold, Milwaukee, Wis., assignor to Relaxaway, Inc., Milwaukee, Wis.

Filed Dec. 23, 1971, Ser. No. 211,398

Int. Cl. A47c *7/00, 7/20, 3/02*

U.S. Cl. 297—259 **9 Claims**



A chair seat and back structure is supported for rocking motion by a pair of U-shaped molded plywood beams of substantially constant cross-section, each beam having a floor engaging portion with a long intermediate upwardly bowed part. A pivoted locking member is provided for selective positioning to prevent rocking.

3,758,150

COLLAPSIBLE WHEEL CHAIR

Patrick Yelverton Williams, 2 Morotai Cres., Castlecrag, New South Wales, Australia

Filed June 28, 1972, Ser. No. 267,203

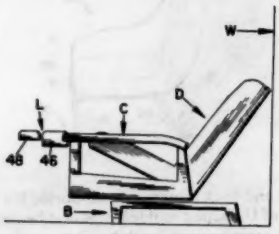
Int. Cl. A61g *5/02;* **A47c** *5/10*

U.S. Cl. 297—45 **3 Claims**

A collapsible wheel chair the weight of which is of the order of 30 lbs and in its collapsed position its width is of the order of 7½ inches. The chair comprises two tubular side frames each formed of a bottom rail and two top rails joined by a single front post and the front member of two rear posts, said side frames being coupled together by two tubular toggle members and a brace, each said toggle member comprising two U members articulated at the base of the U's and having mounting sleeves on the ends of the U limbs, one said toggle member being mounted by said sleeves on the bottom rails between the front posts and the front members of the rear posts, the other said toggle member being mounted on the rear members of the rear posts, said brace being an articulated bar incorporating an off centre lock stop, a sleeve on each end of said brace, each sleeve mounted on a post between the respective top rails adjacent the front ends thereof; axle blocks one mounted on each pair of rear posts with an axle projecting outwardly therefrom, wheels each with a hand manoeuvering ring

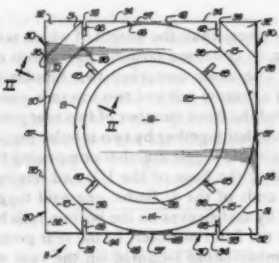
thereon and the hub offset outwardly mounted on the respective axles; castor wheels, a footrest, a seat and back rest are included.

3,758,151
RECLINING CHAIR
Frank Manuel Re, Holyoke, Mass., assignor to Dual Manufacturing and Engineering, Incorporated, Holyoke, Mass.
Filed Feb. 1, 1972, Ser. No. 222,563
Int. Cl. A47c *1/02*
U.S. Cl. 297—83 **10 Claims**



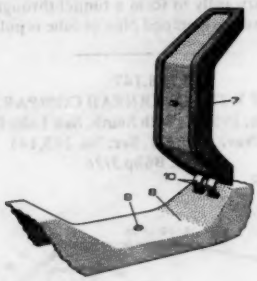
A reclining chair adapted to be positioned in close adjacency to a room wall when in the upright sitting position and yet so structured as to allow ready assumption of any of a variety of reclined positions of occupancy without physical contact of any element thereof with the same room wall, the chair concept envisioning a fixed platform, a chassis movable linearly relative to the platform, and a body-supporting unit movable between the sitting and reclining positions relative to the chassis with a concomitant movement of a leg supporting unit between the retracted and extended positions respectively, a propeller link or other means connecting between the body-supporting unit and platform for propelling the body-supporting unit relative to the platform, with the chassis moving forwardly and progressively away from the wall as transition is made from upright sitting position to progressive positions of reclination, wherefore the body supporting unit is concomitantly moved forwardly away from the room wall, and with the chassis moving rearwardly and progressively toward the wall as transition is made from positions of reclination to upright sitting position, wherefore the body-supporting unit is concomitantly moved rearwardly and toward the room wall.

3,758,152
CIRCULAR TABLE AND SEAT CONSTRUCTION
Gary F. Lake, 487 Short St., Bishop, Calif.
Filed Oct. 21, 1971, Ser. No. 191,532
Int. Cl. A47b *3/06*
U.S. Cl. 297—157 **6 Claims**



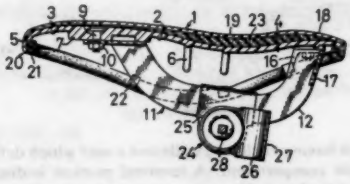
A circular table construction made from a rectangular sheet of material by cutting a minimum number of table parts and with the material waste reduced to a minimum, said table construction having a circular table top and a continuous annular seat member therearound and secured in assembly by a plurality of support means diametrically arranged; the table construction affording virtually unobstructed leg space beneath the table top and being readily relocatable as by rolling on the outer circumferential edge of the annular seat member.

3,758,153
PNEUMATIC SEAT FOR CYCLES
Gary Wayne Bonikowsky, c/o Shalom Conference Centre RR2, Schomberg, Ontario, Canada
Filed Mar. 31, 1972, Ser. No. 240,160
Int. Cl. B62j *1/26*
U.S. Cl. 297—199 **1 Claim**



In a seat for cycles, it is most commonly known to have a resilient, porous foam cushion supported by a rigid base and usually protected by a durable weatherproof and chemical resistant fabric covering, the degree of firmness of the seat being inherently constant and dictated by the density and thickness of the foam. In this invention, a flexible, durable, weatherproof and chemical resistant non-porous molded upper shell is bonded to a rigid or semi-rigid underside portion having an air valve, so as to form a cushion assembly enclosing an inflatable, airtight cavity which rests on a rigid supporting base. With this invention, the degree of firmness of the seat may be adjusted to suit individual comfort requirements by increasing or decreasing the air pressure within the cushion assembly cavity by way of the air valve. Moreover, due to the ideal for-mentioned properties of the molded upper shell, the need for a protective durable fabric covering is eliminated. The cushion assembly may be hinged on the supporting base to raise or have similar accomodation for convenient access to the air valve.

3,758,154
PLASTIC SADDLE FOR BICYCLE
Katuhiko Kitaguchi, Osaka, Japan, assignor to Taihei Industries Co., Ltd., Osaka-fu, Japan
Filed Nov. 30, 1971, Ser. No. 203,265
Int. Cl. B62j *1/08*
U.S. Cl. 297—214 **3 Claims**



A plastic saddle comprises a plastic saddle top and a plastic support therefor. The saddle top is gently inclined upward, extends sidewise in width, has a peripheral flange and is provided on its back face with a thick abutting portion in front and two thick abutting portions at rear opposite sides. The support

principally comprises two support strips which are spaced apart sidewise by a greater distance at their rear portions than at their upwardly inclined front portions providing an abutment corresponding to the front abutting portion of the saddle top. The rear portions are abruptly inclined upward and are formed at their ends with abutments extending sidewise in facing relation to the rear abutting portions of the saddle top. Extending between the abutments and the outer walls of the support strips are reinforcing plates approximately triangular as seen from the rear. The support strips are interconnected by a deflection preventing plate in the vicinity of the reinforcing plates. The saddle top is supported on the support at three points by face-to-face contact between the corresponding abutting portions and abutments with these parts detachably secured together by connecting means such as bolts and nuts. At an intermediate portion of the support strips means is provided for fixedly mounting the saddle on the seat post at an adjustable angle.

3,758,155

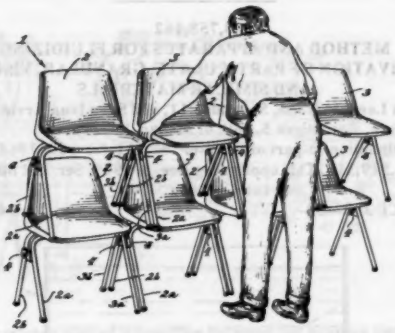
GANG CHAIR CONSTRUCTION

Ernest J. Straits, St. Charles, Ill., assignor to Interlake, Inc., Chicago, Ill.

Continuation of Ser. No. 87,799, Nov. 9, 1970. This application Mar. 16, 1972, Ser. No. 235,447

Int. Cl. A47c *1/124*

U.S. Cl. 297—248 **1 Claim**



A connector means for temporary or permanent ganging of chairs arranged in side-by-side relationship. The connector means having a removable hook member intermediate adjacent identical connector members on adjacent chairs which hook members provides a hook type engagement between the connector members. The hook and the two connector members can be fastened together as an assembly to provide a permanent connection.

3,758,156

AUTOMATIC ROCKER AND GLIDER

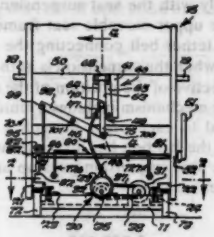
Antoni Zawadzki, 18 Hirschbeck, Buffalo, N.Y.

Filed Oct. 7, 1970, Ser. No. 78,817

Int. Cl. A47c *3/02*

U.S. Cl. 297—260 **10 Claims**

A rocking chair assembly including a flexible line connected at one end to a drive means on the chair base and movably connected at the other end in a housing mounted on the movable rocking chair member. A manually operated control mechanism has a first position tightening the line thereby providing a driving connection between the drive means and the rocking chair member. The mechanism has a second position loosening the line thereby permitting free movement of the rocking chair member. The chair assembly can include manually operated tension adjusting means operatively connected to the line to compensate for the different weights and sizes of persons using the chair.



3,758,157

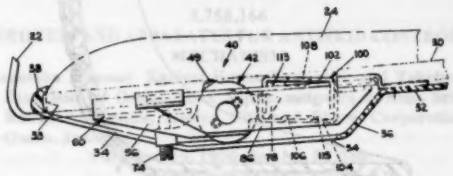
CHAIR

Bernard J. Fries, Jenison, Mich., assignor to Steelcase, Inc., Grand Rapids, Mich.

Filed Sept. 20, 1971, Ser. No. 182,064

Int. Cl. A47c *3/00*

U.S. Cl. 297—300 **31 Claims**



A tension control member controls tilting movement of the chair, or at least a portion thereof such as seat or back, relative to the chair support. The chair seat has an internal body supporting shell whose bottom portion is enclosed by a cover member. The tension control mechanism is anchored to the shell and fully enclosed by the cover to preclude its visual appearance when the chair is viewed in profile. The low profile arrangement of the chair control provides a relatively flat and smooth appearing cover member.

3,758,158

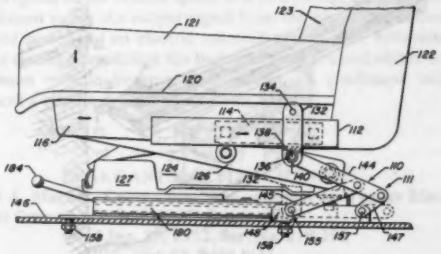
SEAT BELT ANCHOR MECHANISM FOR ADJUSTABLE SEAT

Arthur O. Radke, and Donald C. Galbraith, both of Milwaukee, Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 29, 1971, Ser. No. 213,621

Int. Cl. A62b *35/00*; B60n *21/10, 1/00*

U.S. Cl. 297—385 **4 Claims**



Seat belt anchor mechanism for vertically movable suspension seat having fore and aft adjustment feature provides an

anchor point for a lap belt which is spaced from the floor and movable vertically relative to the floor. The anchor point is carried by a slide on the upper movable seat frame and is movable vertically with the seat suspension but remains stationary when the upper movable seat frame is adjusted fore and aft. Thus, a tether belt connecting the slide to the floor can be kept taut when the suspension is at the upper end of its ride zone, irrespective of the position of the seat in a fore and aft direction. The mechanism includes a plurality of pivot links which are related to each other in such a manner that the anchor point for the lap belt has no horizontal component of movement as the seat suspension goes up and down through its entire movement range.

3,758,159

VEHICLE SEAT CONSTRUCTION

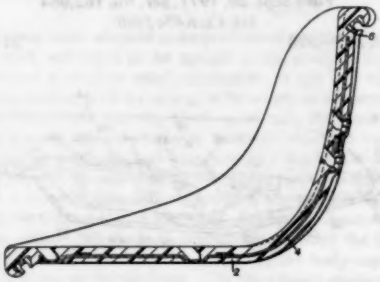
Anthony R. Morris, Northampton, England, assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 12, 1971, Ser. No. 123,802

Claims priority, application Great Britain, Mar. 11, 1970, 11,604/70

Int. Cl. A47c 7/14

U.S. Cl. 297—455 **3 Claims**



A seat pan for a vehicle seat is moulded from a rigid foam plastics and has an insert for coupling the pan to another part of the seat incorporated within the pan during the moulding process. The insert can comprise a pre-formed channel for receiving the edge portion of a seat cover or a suspension mounting.

3,758,160

METHOD AND APPARATUS FOR MINING VEIN MATERIAL ONLY

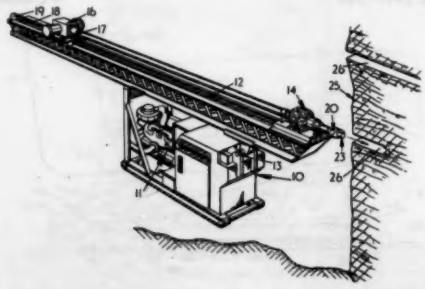
Allan Richard Hilton, Westhoughton, England, assignor to Mining Developments AG, Zug, Switzerland

Filed Dec. 23, 1970, Ser. No. 101,082

Claims priority, application Great Britain, Dec. 30, 1969, 63,237/69

Int. Cl. E21c 37/02, 3/30

U.S. Cl. 299—15 **4 Claims**



A method of mining vein or reef type mineral deposits in which a series of elongate holes are cut or drilled above and below or to each side of the mineral vein or reef. The holes may be contiguous to form a continuous slot or adjacent but spaced, a wedging tool being used to remove the intervening pillars when the slots have been cut to the desired depth, the mineral deposit is removed by bursting out or the like.

3,758,161

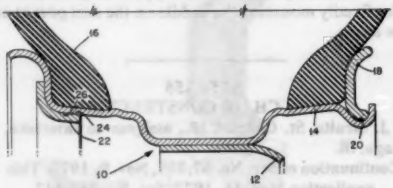
REINFORCED WHEEL RIM

John N. Bradley, Grosse Pointe Woods, and J. Edward Haug, Grosse Pointe Farms, both of Mich., assignors to The Budd Company, Philadelphia, Pa.

Filed Aug. 2, 1971, Ser. No. 168,308

Int. Cl. B60b 1/06

U.S. Cl. 301—63 R **4 Claims**



A rim for supporting a tire on a wheel having reinforcing ring means secured thereto to provide additional strength to the rim in high stress areas.

3,758,162

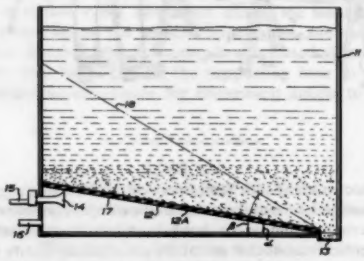
METHOD AND APPARATUS FOR FLUIDIZING ACTIVATION OF PARTICULATE, GRANULAR, VISCOUS AND SIMILAR MATERIALS

Bengt Lennart Holm, Sagoliden 11, and Sven Ivan Arvid Tornmarck, Rosentigen 5, both of Malmo, Sweden

Continuation-in-part of Ser. No. 788,111, Nov. 22, 1968, Pat. No. 3,519,310. This application Dec. 3, 1969, Ser. No. 881,651

Int. Cl. B65g 53/40

U.S. Cl. 302—53 **8 Claims**



System for fluidizing and agitating material by introducing modulated gas into the material to reduce the internal friction thereof.

3,758,163

METHOD OF PNEUMATIC SUCTION CONVEYING OF DISINTEGRATED MATERIALS AND AN ARRANGEMENT FOR APPLICATION OF THIS METHOD

Witold Kalisiak, Warsaw, Poland, assignor to Biuro Konstrukeyjno-Technologiozne Maszyn i Urzadzen Budowlanych, Warszawa, Poland

Filed Nov. 24, 1969, Ser. No. 879,425

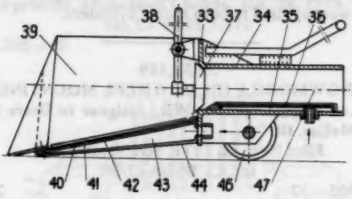
Claims priority, application Poland, Nov. 25, 1968, P 130 231

Int. Cl. B65g 53/14, 53/42

U.S. Cl. 302—58 **9 Claims**

A method and apparatus for pneumatic suction conveying in which a suction conduit has connected to it a suction nozzle

which fluidizes granular material to be conveyed by forcing gas under superatmospheric pressure through a porous partition forming part of the nozzle. The nozzle is connected to a



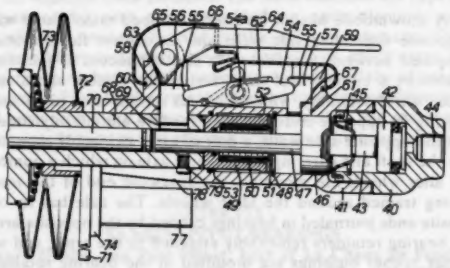
pneumatic suction conduit including a linearly extending porous partition through which such gas is forced to maintain the material in fluidized state while being conveyed through the conduit.

3,758,164

COUPLING MEANS FOR HYDRAULIC BRAKE SYSTEMS

Richard Thomas Fowler, 145 Walkwood Rd., Hunt End, Redditch, Worcestershire, England

Division of Ser. No. 839,331, July 7, 1969, Pat. No. 3,630,575.
This application Mar. 26, 1971, Ser. No. 128,504
Int. Cl. B60t *11/24*
U.S. Cl. 303—7 **4 Claims**



The tractor part of a coupling between the braking systems of a tractor and trailer is an auxiliary piston and cylinder, the cylinder carrying a safety member which prevents movement of the piston in the brake-applying direction when the coupling is disconnected and forms part of the means for connecting the coupling.

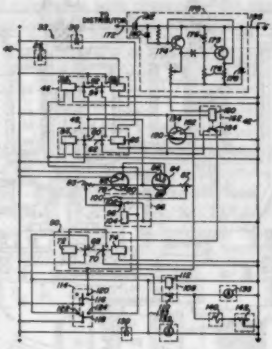
3,758,165

TRAILER SWAY CONTROL APPARATUS

Joseph A. Savelli, 14 Coquina, St. Augustine, Fla.

Filed Dec. 2, 1971, Ser. No. 204,200
Int. Cl. B60t *7/20*
U.S. Cl. 303—20 **13 Claims**

Apparatus for use in regard to a tow vehicle and a trailer vehicle for automatically applying retardation of movement to the trailer vehicle to eliminate a sway condition which may occur in the trailer vehicle. Sway action of a trailer can be eliminated by applying forces which tend to urge relative movement between the tow vehicle and the trailer vehicle in a direction one from the other. Therefore, momentary retardation of the rate of movement of the trailer vehicle eliminates the sway of the trailer. Sensing mechanism senses that the trailer is in a sway condition and the sensing mechanism causes operation of mechanism which operates the brakes of the trailer for retarding the rate of movement of the trailer with respect to the rate of movement of the tow vehicle. The sensing mechanism is capable of distinguishing between a sway condition of the trailer, in which the trailer moves angularly with respect to the tow vehicle, and an angular condition which exists when the tow vehicle is pulling the trailer around a curve or corner or the like. The sensing mechanism is also capable of sensing the rate of operation of the tow vehicle and



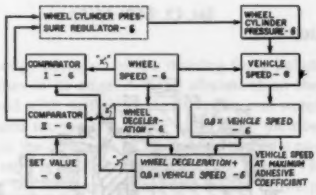
does not sense or attempt to prevent angular movement between the trailer vehicle and the tow vehicle if the tow vehicle operation is less than a predetermined rate, such as occurs in parking of the trailer, etc.

3,758,166

PROCESS AND APPARATUS FOR ANTISKID CONTROL MECHANISM

Kazutaka Kuwana, Kariya; Hayao Yamazaki, and Takefumi Sato, both of Osaka, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya City and Sharp Corporation, Osaka, Japan

Filed Oct. 19, 1970, Ser. No. 82,040
Int. Cl. B60t *8/10*
U.S. Cl. 303—21 P **25 Claims**


WHEEL CYLINDER PRESSURE REGULATOR - 6
WHEEL CYLINDER PRESSURE - 8
COMPARATOR I - G
WHEEL SPEED - G
VEHICLE SPEED - 0
COMPARATOR II - G
WHEEL DECELERATION - G
0.8 × VEHICLE SPEED - G
SET VALUE - G
WHEEL DECELERATION + 0.8 × VEHICLE SPEED - G
VEHICLE SPEED AT MAXIMUM ADHESIVE COEFFICIENT

This invention presents an improved method and apparatus for an antiskid brake control which provides the shortest possible brake application period and maximum adhesive force between the vehicle tires and the road surface under all conditions by utilizing an electronic circuit into which input signals representing vehicle speed, wheel speed and hydraulic brake apply pressure are fed. The electronics control circuit computes the rate of vehicle deceleration and the ratio of the wheel speed to the vehicle speed and compares this ratio with a constant value. An output signal from the electronic circuit is used to control an electric solenoid valve in the hydraulic brake circuit to modulate the hydraulic pressure and obtain an optimum vehicle braking effort under all conditions and prevent a vehicle skid condition from arising.

3,758,167

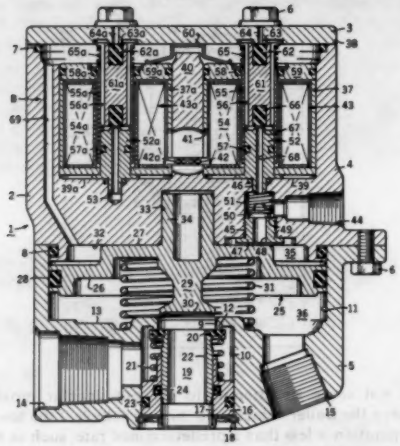
BRAKE ANTI-LOCK MECHANISM

John A. Machek, Creve Coeur, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Jan. 17, 1972, Ser. No. 218,293
Int. Cl. B60t *8/12*
U.S. Cl. 303—40 **39 Claims**

An electro-pneumatic control valve for use in a brake anti-lock system is provided with a relay portion for controlling

fluid pressure applied to the system in response to predeterminately selected fluid pressure samples supplied thereto and electric sampling means responsive to signals supplied thereto



upon the occur-rence of pre-selected conditions in the brake system for controlling the fluid pressure samples supplied to said relay portion.

3,758,168

CONTROL VALVES FOR LIQUID PRESSURE BRAKING SYSTEMS

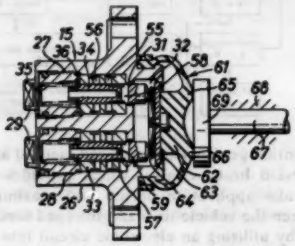
David Parsons, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, England

Filed Dec. 22, 1970, Ser. No. 100,628

Claims priority, application Great Britain, Jan. 5, 1970, 469/70

Int. Cl. B60t *15/06*

U.S. Cl. 303—52 **3 Claims**



A brake application control valve for a dual line fluid pressure braking system comprises a valve body defining two closed ended bores, two plungers, slidable in the bores, and a common actuating member for the plungers. Each bore has a fluid pressure inlet port, one outlet port for connection to a motor cylinder and another outlet port for connection to drain. Each inlet port is connected to one outlet port or the other by an annular recess in the plunger. An axial passage in the plunger connects the annular recess with the closed end of the bore. To apply brakes, the common actuating member is moved to connect the pressure source to the motor cylinders through the valve. In one form of the valve, the common actuating member acts through a beam on the plungers. When pressure at one motor cylinder is lost, the end of the beam nearer the corresponding plunger engages an abutment and the beam fulcrums about the abutment so that a greater proportion of the effort applied to the actuating member is transmitted to the other plunger. In another form of the valve, the common actuating member is guided for movement parallel to the plungers so that, when pressure is lost at one motor cylinder, the effort exerted by the driver is applied to the other valve plunger and the opposing thrust thereon is equal to the opposing thrust exerted on both valve plungers when fluid pressure was supplied to both motor cylinders.

3,758,169

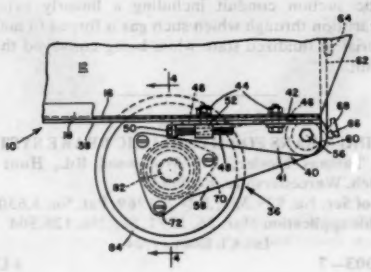
SNOWMOBILE IDLER WHEEL MOUNTING

Robert Lee Trapp, Horicon, Wis., assignor to Deere & Company, Moline, Ill.

Filed Nov. 22, 1971, Ser. No. 201,097

Int. Cl. B62m *27/00*

U.S. Cl. 305—32 **2 Claims**



A snowmobile has an inverted U-shaped main frame with opposite depending side walls and an endless flexible track disposed between the side walls and connected to the main frame by a bogie wheel track suspension system and a rear idler wheel assembly, which includes a transverse pivot shaft having its opposite ends mounted for fore-and-aft adjustment on the opposite side walls, a pair of arms swingably mounted on the shaft and carrying a transverse axle on which a number of idler wheels are mounted, the rearward end of the track being trained around the idler wheels. The axle has its opposite ends journaled in bearings carried by the opposite arms in bearing retainers removably attached to the arms, and annular rubber bushings are mounted in the bearing retainers between the retainers and the bearings.

3,758,170

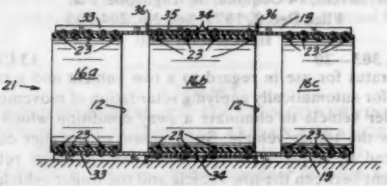
SNOWMOBILE TRACK

Edward A. Mazurek, Thief River Fall, Minn., assignor to Arctic Enterprises, Inc., Thief River Falls, Minn.

Filed Dec. 27, 1971, Ser. No. 212,033

Int. Cl. B62d *55/24*; **B62m** *27/02*

U.S. Cl. 305—35 EB **10 Claims**



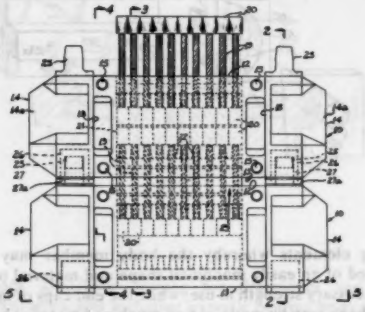
A track assembly for a snowmobile is provided wherein an endless flexible belt has joined thereto a plurality of cleat assembly members extending transversely across the belt, said cleat assembly includes at least two cleat members having a flange portion extending outwardly from the belt with each of said cleat members being joined to opposite ends of a spring steel member to form a unitary cleat assembly.

3,758,171

VEHICLE TRACK ELEMENT

Dominic Plastino, 1315 Jules Poitras, Apt. 418, Ville St. Laurent, Montreal, Quebec, Canada

Filed Feb. 23, 1971, Ser. No. 118,129
Claims priority, application Canada, Jan. 18, 1971, 102,997
Int. Cl. B62d *55/18*
U.S. Cl. 305—40 7 Claims



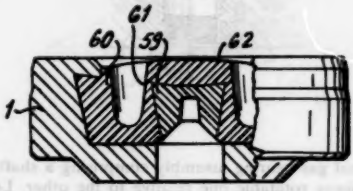
A track of a track laying vehicle consists of a set of identical track elements which are serially connected together by wire rope connectors extending between adjacent elements. An elastomeric seal protectively and supportably encloses portions of the wire rope connectors between opposing side edges of the adjacent track elements. The track elements are kept in alignment by gear teeth provided on each element and received in sockets formed in the adjacent element. The sockets have elastomeric inserts, portions of which serve to seal the space between the opposing side edges of the adjacent elements. Each track element is formed from two complemental parts which are separably secured together and are complementally recessed to accommodate the wire rope connectors.

3,758,172

ELASTIC PIVOT BEARINGS

Henry Quaile, and Paul Piguet, both of La Chaux de Fonds, Switzerland, assignors to Portescap, La Chaux de Fonds, Switzerland

Filed June 22, 1971, Ser. No. 155,580
Claims priority, application Switzerland, June 25, 1970, 9626/70; July 6, 1970, 10177/70
Int. Cl. F16c *11/00*
U.S. Cl. 308—2 4 Claims



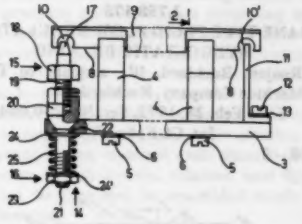
A bearing for use in a bearing housing of a precision instrument has a central zone formed of a self-lubricating plastic material and an aperture therein for receiving the end of a shaft. Means is provided surrounding the central zone for elastically securing the bearing member to the housing whereby limited movement of the central zone with respect to the housing is permitted to dampen shocks to which the housing and shaft may be subjected. In one embodiment of the invention the means for securing the central zone of the bearing comprises a separate mounting member having the self-lubricating plastic central zone embedded therein. In another embodiment, the entire bearing is formed as a one piece member of self-lubricating plastic material and has at least one hollow space therein of predetermined configuration selected to provide a desired elasticity in the mounting member in both axial and radial directions with respect to the shaft to permit the desired limited movement of the central zone.

3,758,173

KNIFE EDGE BEARING FOR BALANCE BEAM

Hans Bucher, Galgnen, Switzerland, assignor to Mettler Instruments AG, Greifensee-Zurich, Switzerland

Filed Mar. 14, 1972, Ser. No. 234,505
Claims priority, application Switzerland, Aug. 26, 1971, 12506/71; Jan. 18, 1972, 701/72
Int. Cl. F16c *11/00*
U.S. Cl. 308—2 R 8 Claims



The knife edge member of the bearing for a balance beam has two notches in its edge. A fixed abutment on the bearing seat is received with sufficient clearance in one notch to permit only limited movement of the knife edge member on the bearing seat in the direction of its pivot axis, and a conical end portion of a stop is received in the second notch. The stop is adjustable on the bearing seat at right angles to the pivot axis inward and outward of the second notch to permit engagement of the end portion with the rim of the second notch even after wear of the respective contact surfaces, and a helical compression spring yieldably opposes displacement of the end portion of the stop and of the engaged knife edge member from an axial position on the bearing seat in which the abutment is approximately centered in the first notch.

3,758,174

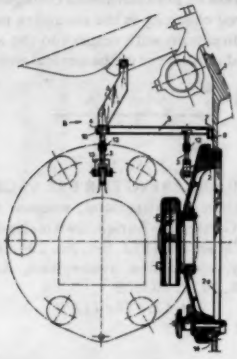
HANDLING DEVICE FOR MOUNTING OR REMOVING AN ACCESS DOOR

Karl Walter Kuhn, Saint-Germain-En-Laye, France, assignor to Societe d'Etudes de Machines Thermiques, Saint-Denis, France

Filed May 18, 1972, Ser. No. 255,301
Claims priority, application France, June 7, 1971, 7120517
Int. Cl. F16c *17/00*
U.S. Cl. 308—3 R 2 Claims

Handling device for mounting or removing an access door of a case or housing of a structure such as a machine or the like, characterized in that it comprises a substantially horizontal system of slide guides secured preferably removably

against the lateral wall of the case outside of the latter and at least one movable suspension member supported and guided

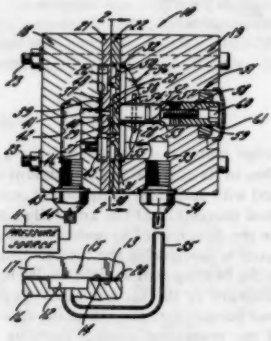


by the said system of slide guides and adapted to be removably secured to the said door.

3,758,175
MEMBRANE TYPE FLUID FLOW REGULATOR FOR A HYDROSTATIC BEARING

Jan Van Roojen, Rockford, Ill., assignor to The Ingersoll Milling Machine Company, Rockford, Ill.

Filed Feb. 28, 1972, Ser. No. 230,004
Int. Cl. F16c *17/00*
U.S. Cl. 308—5 **6 Claims**



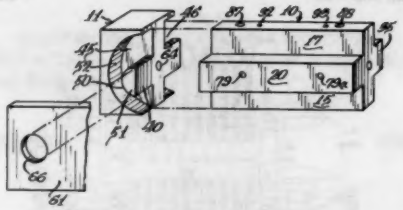
A membrane type controller for regulating the flow of pressure fluid to the pad of a single hydrostatic bearing includes means for hydraulically applying a snubbing force to the back side of the membrane to prevent objectionable vibration thereof, means for precluding complete closure of the flow restricting gap during initial build-up of the supply pressure, and means for adjusting the initial width of the gap preparatory to service use of the controller.

3,758,176
BEARING PACK

Derek E. Stapley, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Nov. 19, 1971, Ser. No. 200,419
Int. Cl. F16c *29/06*
U.S. Cl. 308—6 C **5 Claims**

A bearing pack for load support of moving parts wherein a plurality of rolling elements, and more particularly roller bearings, are mounted for travel along a load zone and a return path with the load zone and a major part of the return path being defined by a body member of one-piece construction. A pair of end caps extend from the body member and each have a curved guide channel interconnecting the load zone and the return path to provide a complete circuit for the

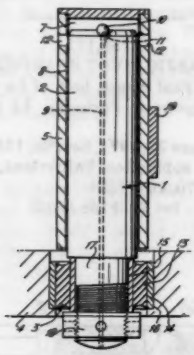


rolling elements whereby the body member may be constructed of an easily machined shape and material to provide the necessary strength in use, while the end caps of more complex shape may be made of non-machined material because of the lower strength requirements thereof.

3,758,177
AIR BEARINGS

Raymond Williams, Appleton, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Mar. 9, 1971, Ser. No. 122,491
Claims priority, application Great Britain, Mar. 12, 1970, 12,053/70; Jan. 1, 1971, 13,471/71; Jan. 1, 1971, 13,571/71
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **31 Claims**



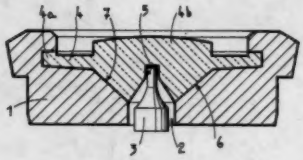
A journal gas bearing assembly comprising a shaft and a bearing sleeve rotatable one relative to the other. Longitudinal movement of the shaft and 1 bearing sleeve relative to each other in the direction is limited by a hydrostatic thrust bearing formed by a cushion of gas trapped under pressure in a closed volume defined between the shaft and the bearing sleeve. Relative longitudinal movement between the shaft and the bearing sleeve in the reverse direction may be limited by providing for venting the closed volume at the beginning of relative longitudinal movement between the shaft and the bearing sleeve in the reverse direction or by providing a hydrodynamic thrust bearing between the shaft and the bearing sleeve acting in the opposite sense to the hydrostatic thrust bearing.

3,758,178

SHOCK ABSORBING BEARING FOR TIMEPIECE AND SMALL APPARATUS

Andre Meylan-Rochat, La Brassus, Switzerland, assignor to Pareohoc S.A., Canton of Vaud, Switzerland

Filed Feb. 23, 1972, Ser. No. 228,579
Int. Cl. F16c 17/10
U.S. Cl. 308—159 2 Claims



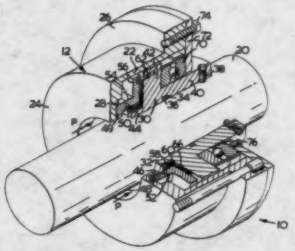
A shock absorbing bearing for timepieces and small mechanical apparatus including a plastic bearing body of disc-like configuration having a peripheral thin ring shaped portion secured to a bearing support and a central thickening having a bearing surface. A recess is formed in said thickening opening to the bearing surface for receiving the end of a shaft. The bearing surface has a frusto-conical configuration and the bearing support has a seat of conforming configuration to assure centering. Axial shocks are absorbed by the elastic deformation of the ring shaped portion and lateral shocks are absorbed by elastic deformation of the thickening.

3,758,179

MECHANICAL SHAFT SEAL

Basil G. Smith, Kentville, Nova Scotia, Canada, assignor to Basil Smith Seals Limited, Kentville, Nova Scotia, Canada

Filed Dec. 14, 1971, Ser. No. 207,935
Claims priority, application Canada, Sept. 24, 1971, 123627
Int. Cl. F16c 33/76
U.S. Cl. 308—187.1 17 Claims



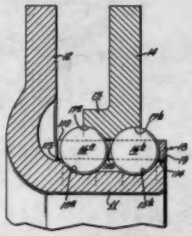
An externally mounted axial mechanical shaft seal includes a housing having a rotor adapted to sealingly engage a shaft mounted therein. A rotating seal ring mounted on said rotor is biased by a Belleville spring washer towards a stationary seal ring on said housing. A thrust bearing disposed between a portion of the rotor and the housing prevents the rotor from moving away from the stationary seal ring, maintains alignment of the seal rings and absorbs axial shock loads. As wear of the seal rings takes place, adjustment screws are tightened against the thrust bearing to move the rotor toward the stationary seal ring to compress the Belleville spring washer to the required degree.

3,758,180

CAGE FOR ROLLING BODIES IN A DOUBLE-ROW ROLLING BEARING

Sture Lennart Asberg, Savedalen, and Erik Edvin Eriksson, Goteborg, both of Sweden, assignors to SKF Industrial Trading and Development Company, Amsterdam, Netherlands

Filed Aug. 27, 1971, Ser. No. 175,654
Claims priority, application Sweden, Aug. 27, 1970, 11621/70
Int. Cl. F16c 33/46
U.S. Cl. 308—201 3 Claims



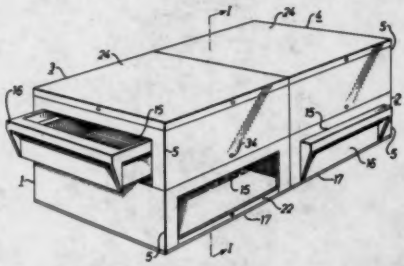
A cage for rolling elements of a double row rolling bearing comprising a circumferentially-extending annular member, a plurality of generally parallel fingers projecting axially from said annular member and circumferentially spaced apart to define a plurality of pockets for the rolling elements, each of said pockets including a means for spacing the rolling elements in side-by-side relation to form the two rows of rolling elements, each of said fingers being spaced apart adjacent the terminal ends remote from said annular member and being formed adjacent to the terminal ends thereof to retain the rolling elements in side-by-side relation, said fingers being resilent so that the cage may be assembled axially relative to the rolling elements.

3,758,181

PEDESTAL SYSTEM FOR TABLES, BOOKSHELVES, SHOP FURNISHINGS AND THE LIKE

Imre Bolyos, Kevingeringen 25, .8 18233 Danderyd, Sweden

Filed Oct. 28, 1971, Ser. No. 193,282
Claims priority, application Sweden, Nov. 16, 1970, 15493/70
Int. Cl. A47b 77/00
U.S. Cl. 312—107 3 Claims

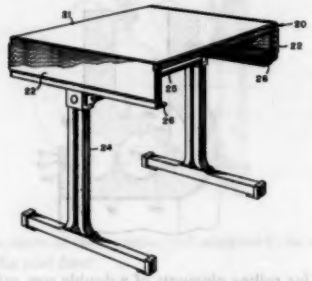


A modular pedestal construction composed of a plurality of like modules which may be stacked and/or disposed laterally adjacent one another to form a unit. Each module comprises a bottomless box frame of square horizontal cross section with thin side walls and peripherally extending shoulders having abutment surfaces whose width is equal to the thickness of the side walls so that the module frames may be stacked while their side walls are flush with each other. A thin-walled bottom plate of the same square cross section closes off each bottom module of the unit, each bottom plate having peripherally extending shoulders having abutment surfaces whose width is equal to the thickness of the side walls.

3,758,182
DESK AND TRAY STRUCTURE

Chester J. Barecki; Arthur L. Van Ryn, both of Grand Rapids, and Kenneth W. Hozeski, Grandville, all of Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed June 3, 1971, Ser. No. 149,726
Int. Cl. A47b *17/00, 19/00, 91/00*
U.S. Cl. 312—194 6 Claims

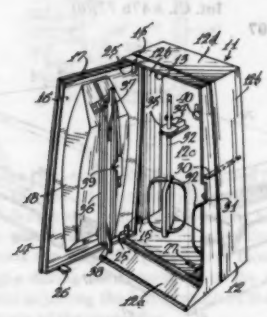


A desk is firmly and adjustably supported on each side by twin square legs equipped with enclosed diverging foot runners, the upper ends of the legs being forced into right angle corners of brackets fixed to the desk by a V-clamping rib and the desk being open at its front and provided along its inner sides with ledges for receiving a carry tray also open at its front and useful as a writing board or floor desk.

3,758,183
FOOD MIXER STORAGE RACK

Norman A. Steinkamp, Chicago Heights, and John M. Stipanuk, Elmhurst, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Aug. 26, 1971, Ser. No. 175,154
Int. Cl. A47b *81/00, 67/02*
U.S. Cl. 312—292 8 Claims

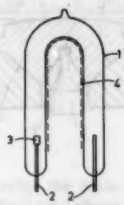


A storage rack for an electric food mixer wherein the mixer is nested in a hingable door of a compartment in which the beaters and cord for the mixer are stored with the cord supported on the inside of the door and the beaters mounted on the compartment wall on either side of the mixer. The rack is adapted for either wall mounting or table surface support and includes simplified means for detachably retaining the mixer on the rack. The door to the storage compartment is hinged so that the weight of the mixer tends to retain the door in the closed position.

3,758,184
METHOD OF MANUFACTURING AN ELECTRODE FOR A GAS DISCHARGE TUBE

Max Menzel, Aachen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,401
Claims priority, application Germany, Dec. 3, 1970, P 20 59 572.6
Int. Cl. H01j *7/18*
U.S. Cl. 316—25 3 Claims

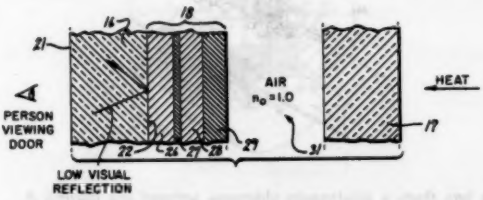


Quench tubes are switching which are used in electronic flash devices so as to reduce the quantity of light emitted by the flash lamp of that device. The electrodes of known quench tube became unusable after a short period. According to the invention a quench tube having a long lifetime and a reliable ignition is obtained when an electrode body consisting inter alia of sintered nickel powder is manufactured by means of a method in which the nickel powder is first mixed with a given material comprising an alkali metal or alkaline earth metal, whereafter the assembly is moulded to the desired form and is then sintered at a given temperature whereafter it is secured to a current supply rod and is subsequently activated by an electrical current pulse after it has been sealed in a discharge vessel.

3,758,185
THERMAL CONTROL FILTER

Robert M. Gelber, Healdsburg, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Apr. 1, 1971, Ser. No. 130,183
Int. Cl. G02b *13/16, 5/28*
U.S. Cl. 350—1 20 Claims



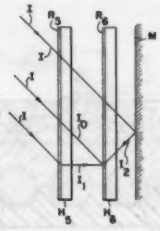
Thermal control filter having a substrate capable of transmitting visible energy and having a surface with a coating thereon with the coating being formed of a first layer of dielectric material on the substrate side of the coating and a bilayer consisting of a thin layer of a material different from the substrate and a metal layer of either copper or gold. The thin layer serves as a nucleating layer for the metal layer and is on the substrate side of the bilayer. The coating has a second dielectric layer formed on the atmosphere side of the metal layer.

3,758,186

METHOD OF COPYING HOLOGRAMS

Douglas B. Brumm, Ann Arbor, Mich., assignor to The Battelle Development Corporation, Columbus, Ohio

Filed Nov. 30, 1966, Ser. No. 598,008
Int. Cl. G02b 27/00
U.S. Cl. 350—3.5 2 Claims



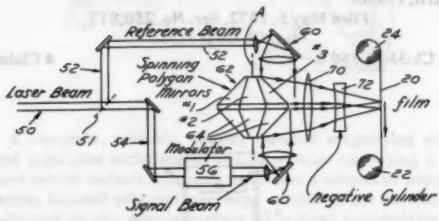
A method of copying holograms wherein the original hologram and the detector are spaced apart at least a couple of wavelengths during the copying so that the undiffracted or 0-order wavefront transmitted by the original hologram can serve as the reference beam thus eliminating the need for introducing a separate beam.

3,758,187

METHOD AND APPARATUS FOR RECORDING INTELLIGENCE ON A SHEET MATERIAL

Carlton E. Thomas, Van Nuys, Calif., and Norman G. Massey, Ypsilanti, Mich., assignors to KMS Industries, Inc., Ann Arbor, Mich.

Filed June 9, 1971, Ser. No. 151,458
Int. Cl. G02b 5/18
U.S. Cl. 350—3.5 8 Claims



A method and apparatus for recording intelligence on a moving sheet such as a light sensitive strip. The data is modulated into a coherent light reference or a signal beam of a holographic recording system while one of the beams is altered in angle for each pass across the recording strip to record a series of holograms, each adjacent series on the strip having a spatial frequency different from the next wherein overlap will not interfere with readout which isolates each frequency in turn.

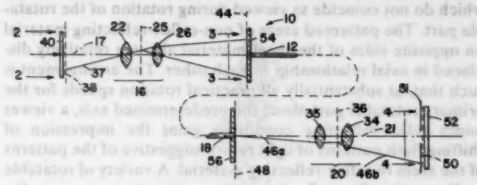
3,758,188

IMAGE-TRANSMITTING OPTICAL SYSTEM

Charles O. Koester, Sudbury, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed June 6, 1972, Ser. No. 260,239
Int. Cl. G02b 5/16
U.S. Cl. 350—96 B 10 Claims

Optical system for transmitting two-dimensional achromatic images from one location to another location spaced therefrom using a single sheet-like layer, or no more than a few adjacent sheet-like layers, of elongated fiber optical components and light diffraction and image-forming means in conjunction therewith.

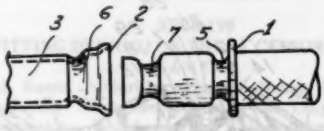


3,758,189

METAL CABLE TERMINAL FOR LIGHT GUIDING CABLE

Giuseppe Codrino, Via Stazione, Quattordio, Alessandria, Italy

Filed Nov. 9, 1971, Ser. No. 197,061
Int. Cl. G02b 5/16
U.S. Cl. 350—96 B 5 Claims



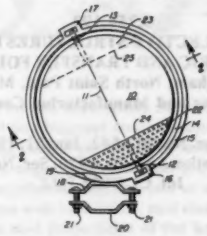
A metal cable terminal for light guiding cable, particularly adapted for application to a light diffuser, provided with one or more attachment members.

3,758,190

JUMPING REFLEX-REFLECTION

Donald J. Douglas, White Bear Lake, Minn., assignor to Nu-Pro, Inc., St. Paul, Minn.

Filed May 8, 1972, Ser. No. 251,431
Int. Cl. G02b 5/12
U.S. Cl. 350—97 22 Claims



The jumping reflex-reflectors disclosed are eye-catching attention-getting safety devices. They have at least one primary rotatable part, an axis means establishing a predetermined axis for rotation of the primary rotatable part, and holding means for the axis means to permit the rotation, especially a wind-actuated rotation. The primary rotatable part comprises a form-retaining body, preferably a base sheet material. This base sheet is aligned with substantially all portions of it extending substantially parallel with the predetermined axis for its rotation. It is contoured at least in portions outwardly from the axis; and patterned areas of reflex-reflecting material and of non-reflex-reflecting material (preferably fluorescent) are disposed on opposite sides of it. The patterned area of reflex-reflecting material on one side is relatively displaced in axial relationship from the patterned area of reflex-reflecting

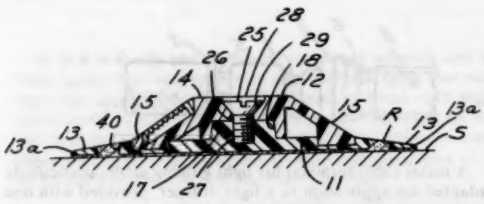
material on the other side. In all cases, at least 50 percent of the area coverage of each reflex-reflecting pattern on opposite sides of the sheet material is in locations relative to the axis which do not coincide as viewed during rotation of the rotatable part. The patterned areas of non-reflex-reflecting material on opposite sides of the sheet material also are relatively displaced in axial relationship to each other. The arrangement is such that, at substantially all practical rotation speeds for the primary rotatable part about the predetermined axis, a viewer under reflex-reflecting conditions gains the impression of shifting flash patterns of light return suggestive of the patterns of the areas of reflex-reflecting material. A variety of rotatable bodies and reflex-reflecting pattern arrangements are disclosed.

3,758,191

ROADWAY MARKER

Peter Hedgewick, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Amherstburg, Ontario, Canada

Filed Apr. 5, 1971, Ser. No. 130,942
Int. Cl. G02b 5/12
U.S. Cl. 350—103 **9 Claims**



A roadway marker comprising a substantially flat base plate and a housing mechanically interlocked to said base plate. The housing includes an outer surface that is inclined to the roadway when the marker is applied to the roadway. The outer surface has a recess into which a reflector is mounted. The reflector has a substantially smooth outer surface and a plurality of retro-reflective prisms on the inner surface which are adapted to reflect light from the light beams of the automotive vehicle back to the eyes of the driver.

3,758,192

REFLEX-REFLECTIVE STRUCTURES INCLUDING FABRIC AND TRANSFER FOILS

Wallace Karl Bingham, North Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 792,542, Jan. 21, 1969, abandoned. This application Aug. 20, 1970, Ser. No. 65,531
Int. Cl. G02b 5/12
U.S. Cl. 350—105 **16 Claims**

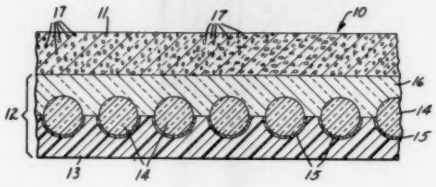
A reflex-reflecting structure in which glass beads, preferably within the size range of 25 to 250 microns and having a refractive index of at least 1.8, are hemispherically surrounded by a binder containing specularly reflective nacreous pigment particles which have maximum dimensional sizes falling within the range of eight to 30 microns and thicknesses within the range of 25 to 200 millimicrons. Pigmented color layers and adhesive layers may be provided over the binder layer.

3,758,193

INFRARED-TRANSMISSIVE, VISIBLE-LIGHT-ABSORPTIVE RETRO-REFLECTORS

Chi Fang Tung, Lincoln Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed July 2, 1971, Ser. No. 159,196
Int. Cl. G02b 5/12
U.S. Cl. 350—105 **6 Claims**



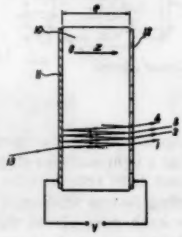
Retro-reflectors that incorporate, between the outer surface of the reflector and a reflective surface within the reflector, a thin layer of a material that transmits infrared radiation and substantially absorbs visible light. The layer comprises discrete, water-insoluble, organic, infrared-transmissive, visible-light-absorptive pigment particles dispersed in a matrix film having an index of refraction substantially the same as the index of refraction of the pigment particles and not substantially greater than the index of refraction of any material between the thin layer and said reflective surface.

3,758,194

INTERFEROMETRIC MODULATOR FOR USE IN NATURAL LIGHT

Jacques Daval, Meylan, and Francis Forrat, Grenoble, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed May 5, 1972, Ser. No. 250,817
Int. Cl. G02f 1/36
U.S. Cl. 350—160 R **4 Claims**



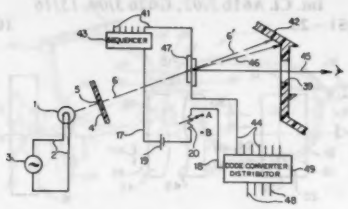
The interferometric modulator comprises a plate having parallel faces and cut at right angles to the optic axis in a uniaxial crystal of the type which produces an electro-optical effect and retains its uniaxial character for an electric field applied along the optic axis, and two flat, semi-transparent electrodes placed at right angles to the faces of the plate. A variable voltage is applied between the electrodes so as to vary the refractive index of the crystal for a beam of natural light which strikes the optical system in a direction close to the optic axis and undergoes a series of internal reflections from the electrodes.

3,758,195

VOLTAGE-CONTROLLED SPECTRAL SEPARATION OF LIGHT WITH LIQUID CRYSTALS

Clarence L. Hedman, Jr., Campbell; Karl-Dieter S. Myrenne, Los Altos, and Perry H. Vartanian, Jr., Woodside, all of Calif., assignors to SCM Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,709
Int. Cl. G02f 1/16
U.S. Cl. 350—160 LC 9 Claims



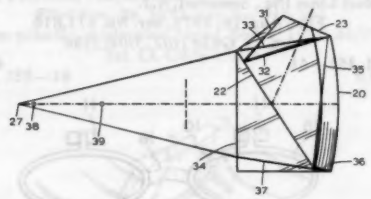
Light of different colors is produced by using as a "diffraction grating" a cell containing a liquid crystal material, with selectively variable fields being applied across the cell to present the different colors at a viewing station. Application is made to monochromators, symbol displays, and other devices.

3,758,196

OPTICAL MAGNIFYING SYSTEM AND APPARATUS FOR VIEWING SMALL OBJECTS

Helmut Weiss, 1230 Berkshire Ln., Newport Beach, Calif.

Filed Apr. 12, 1971, Ser. No. 133,191
Int. Cl. G02b 17/00
U.S. Cl. 350—241 22 Claims



A compact, portable, readily handled magnifying system and apparatus including an optical system employing a concave mirror surface reflecting light from a subject or objective means located adjacent one edge of the mirror surface and reflected to the mirror surface by a light transmitting and reflecting surface which permits passage of the reflected light from the concave mirror surface to a viewing zone, the optical elements being arranged to provide high magnification and a wide viewing zone or span of substantial length along the viewing axis whereby eye fatigue is reduced and minimized. A compact, readily manually handled apparatus for presenting small subjects to be viewed, such as microfilm frames, to such an optical magnifying system by advancing the subjects to be viewed along a helical path.

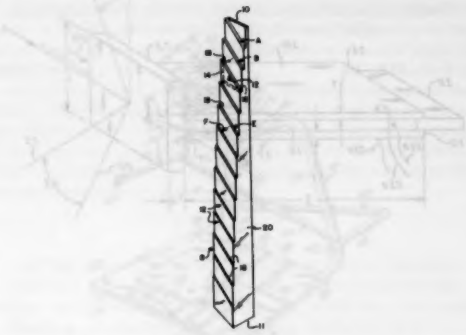
3,758,197

LIGHT COLLECTING AND TRANSMITTING APPARATUS

Daniel M. Klang, Huntington Station, and Roger Mosciatti, Coram, Long Island, both of N.Y., assignors to Bucode, Inc., Hauppauge, N.Y.

Filed Nov. 15, 1971, Ser. No. 198,588
Int. Cl. G02b 5/04
U.S. Cl. 350—286 14 Claims

An optical device for collecting and transmitting light is described. It consists of a longitudinal bar which is composed of transparent material and which has a plurality of totally reflecting prisms arranged in step-like fashion along an inclined surface of the bar. Light incident on one side of the



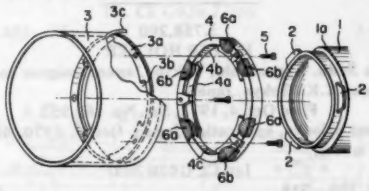
bar is reflected within the bar toward the base of the bar and light incident on the base of the bar is reflected out one side of the bar.

3,758,198

FITTING DEVICE FOR THE ACCESSORIES OF A CAMERA

Shiomi Kanie, Midori-ku, Higashi Hongo Daini Jutaku, Yohohama; Takeo Shoji, Meguro-ku, Tokyo; Isao Nogi, Kanagawa-ku, Yokohama, and Taizo Mitani, Kohuku-ku, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 4, 1972, Ser. No. 241,034
Claims priority, application Japan, Apr. 16, 1971, 46/24781
Int. Cl. G02b 7/02
U.S. Cl. 350—257 8 Claims



Fitting device for the accessories such as lens hood, etc. by means of a revolving bayonet mount system, comprising projections for fitting on the periphery of lens tube, the accessories having brims engageable with said projections and elastic pieces made of synthetic material, and at an engaged position of said projections with said brims, said elastic pieces are compressed between said projections of the lens tube and the accessories, thus the latter is held on the former by the resiliency of said elastic pieces.

3,758,199

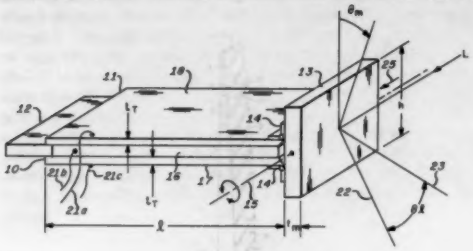
PIEZOELECTRICALLY ACTUATED LIGHT DEFLECTOR

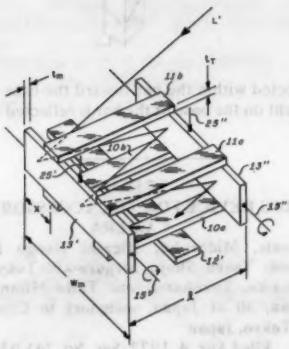
James B. Thaxter, Townsend, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 22, 1971, Ser. No. 200,672
Int. Cl. G02f 1/34
U.S. Cl. 350—285 9 Claims

A piezoelectrically actuated type light deflector comprising a pair of piezoelectric transducers rigidly cantilevered at one end from a support member and articulately connected at the other end to a mirror. Electrodes affixed to the transducers provide for application of electrical signals in a manner to utilize an extensional mode of the transducers in which one trans-

ducer elongates and the other contracts, or conversely, so as to rotate the mirror about an axis passing therethrough and



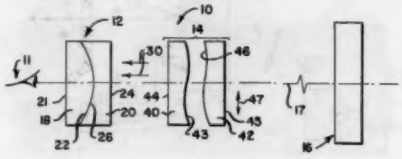


thereby produce deflection of a light beam impinging on the mirror.

3,758,200
FILTER HOLDER
Yutaka Saito, Koganei-shi, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
Filed Oct. 4, 1971, Ser. No. 185,952
Claims priority, application Japan, Oct. 6, 1970, 45/98747 (utility model)
Int. Cl. G02b 7/00
U.S. Cl. 350—318 **4 Claims**

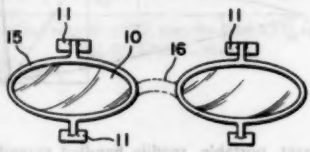
A filter holder for holding a gelatin filter in front of a photographic lens consists of a filter ring having a threaded portion for attaching the lens barrel, a filter mounting device relatively rotatable with respect to the ring and spring means interposed between the filter ring and the filter mounting device. Between the spring means and the filter ring there is provided means for rotating the holder together with the ring to mount them on the lens barrel, and at the final stage against the spring action of the spring means only the filter mounting device rotates while the ring is kept stationary so as to adjust the location of the filter mounting at a position suitable for changing the filter or for phototaking. However, when the filter holder is removed from the lens barrel, said means acts to rotate the ring together with the filter mounting device so as to secure the removal of the filter holder from the lens barrel.

3,758,201
OPTICAL SYSTEM FOR IMPROVED EYE REFRACTION
Stephen M. MacNeille, Southborough, Mich., assignor to American Optical Corporation, Southbridge, Mass.
Filed July 15, 1971, Ser. No. 162,960
Int. Cl. A61b 3/02; G02b 3/04, 15/16
U.S. Cl. 351—25 **10 Claims**



Eye refraction optical system including birefringent and variable power lens means in optical alignment with target structure providing target area to be viewed simultaneously in light of two different groups of polarized light rays, said birefringent and variable power lens means including birefringent means for effecting a slightly different dioptric power for the viewed target area for one of said groups from that of the other and also including movable refractive lens means for changing the effective dioptric power of both target areas simultaneously for choice by patient of image of best focus.

3,758,202
EYEGLASS FRAMES
Lorenzo Chunga, Sr., Brooklyn, N.Y., assignor to Creative Product Lines INc., Somerset, N.J.
Filed Aug. 16, 1971, Ser. No. 171,816
Int. Cl. G02c 1/02, 5/04, 3/00
U.S. Cl. 351—41 **4 Claims**

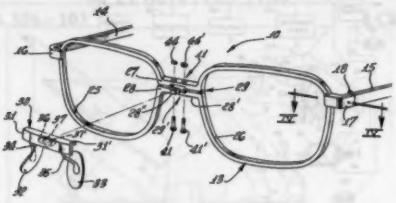


Eyeglass frames for supporting lenses adjacent the eyes of the wearer consisting of a plurality of supporting members, having their longitudinal axes disposed vertically with respect to the face of the wearer, mounted on the upper and lower edges of the lenses. The members engage the skin adjacent the eye socket of the individual wearing the glasses and provide a movable support for the lenses adjacent the eye of the user. If desired, the frames may also include a nose bridge member to furnish additional support on the nose of the wearer. The support members are secured to the face of the wearer by adhesive means disposed on the ends of the support members, and are slidably engaged on the edges of the lenses so as to be adjustable during use.

3,758,203
EYEGLASSES FRAME CONSTRUCTION
Harold Lipchik, Encino, and Ernest G. Racicot, La Crescenta, both of Calif., assignors to Halco Industries, Inc., Glendale, Calif.
Filed Jan. 27, 1972, Ser. No. 221,159
Int. Cl. G02c 1/08, 5/02, 5/12
U.S. Cl. 351—98 **8 Claims**

A one-piece front is stamped out of aluminum material with a central bridge portion interconnecting a pair of lens rim por-

tions having inner-peripheral grooves for receiving beveled edge lenses. The bridge portion is split by a longitudinally extending narrow gap between upper and lower bridge segments to facilitate insertion of the lenses, retention of the lense therein being effected by mechanical fastening means associated with the bridge segments. One of the bridge segments is vertically split to allow insertion and retention of each lense independent from the other. A combination nose pad mounting and bridge masking means is of a weldable material and has a plate portion overlying and concealing the bridge gap and split and has a pair of nose pads welded via associated nose pad arms thereto. A tang extending laterally of the masking plate is received within a slot formed in the bridge segments in marginal areas adjacent said gap and said mechanical fastening means passes through said tang to hold the construction in assembled relation.



3,758,204

DEVELOPING DEVICE OF THE WET DEVELOPING AGENT TYPE FOR ELECTROPHOTOGRAPHIC DUPLICATION

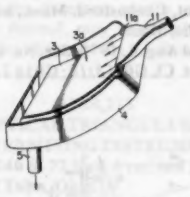
Nobuo Mochizuki, Matsudo, Chiba-ken, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1972, Ser. No. 310,154

Claims priority, application Japan, Dec. 7, 1971, 46/99226

Int. Cl. G03g *15/10*

U.S. Cl. 355—10 **6 Claims**



A device wherein a coat of a developing agent adhesion preventing material is applied to the surface of an opposed electrode plate disposed in juxtaposed relation to a photosensitive body. A viscous developing liquid of high toner concentration is supplied to a space between the photo-sensitive body and the developing agent adhesion preventing material layer of this opposite electrode plate by a liquid circulating mechanism so as to conver. an electrostatic latent image on the photosensitive body into a toner image capable of being transferred to copy sheets.

3,758,205

PHOTOGRAPHIC STAND

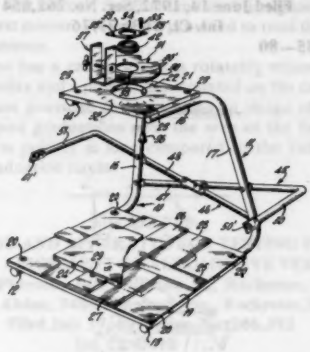
John W. Oxbery, New Rochelle, N.Y., assignor to Ox Products Inc., Mamaroneck, N.Y.

Filed July 3, 1972, Ser. No. 268,629

Int. Cl. G03b *27/32*

U.S. Cl. 355—18 **2 Claims**

A photographic stand having a work surface including a plate universally movable in the plane of the work surface for supporting the images and articles to be photographed, a camera supporting plate positioned centrally and above the work surface, a frame carrying both the work surface and camera supporting plate and having means for holding light sources for illuminating the work surface and a rotatable camera mount on the camera supporting plate. In this way a variety of interesting and unusual effects can be obtained by both rotation of the camera and displacement of the image or article during the photographic operation.



3,758,206

DEVICE FOR SETTING A HALF-TONE NEGATIVE FOR PRODUCING A HALF-TONE PLATE FOR USE IN POLYCHROME PRINTING TO A PREDETERMINED POSITION ON A SHEET FILM

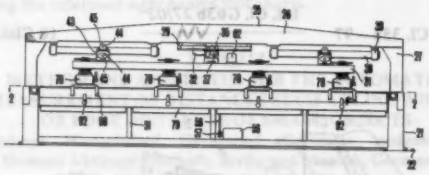
Yoshio Inoue, No. 10, 2-chome, Tanabehigashino-cho, Higashisumiyoshi-ku, Osaka, Japan

Filed Feb. 24, 1972, Ser. No. 228,986

Claims priority, application Japan, Mar. 4, 1971, 46/12080; May 10, 1971, 46/32132

Int. Cl. G03b *27/66*

U.S. Cl. 355—75 **3 Claims**



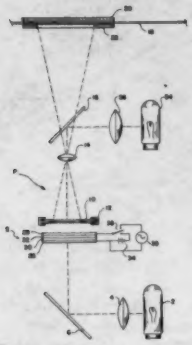
A device for positioning a half-tone negative at a predetermined position on a sheet film for production of polychrome printing plates. The device has a base box with a gate-shaped frame thereon which is slidable longitudinally on rails on both sides of the base box. An arm is slidable transversely of the frame in parallel with an upper horizontal member of the gate-shaped frame. Negative shifting boxes are suitably spaced between the ends of the arm, the boxes having vertically positioned rotary drive shafts adapted to rotate synchronously to turn the boxes. Pins are provided on the boxes to fit into holes provided in half-tone negatives. Sheet film clipping elements are provided on the table directy under each box. Driving means drives the frame back and forth along the base box and drives the base back and forth along the frame synchronously. Synchronized drive means in the respective negative shifting boxes adjust the rotational positions of the boxes. Proper manipulation of the frame and arm and the synchronized drive means enables precise synchronizes positioning of a plurality of negatives carried by the respective negative shifting boxes relative to a negative sheet on the base box.

3,758,207

MASKING PRINTER

Edward K. Letzer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 81,960, Oct. 10, 1970, abandoned.
Filed June 14, 1972, Ser. No. 262,854
Int. Cl. G03b 27/76
U.S. Cl. 355—80 4 Claims



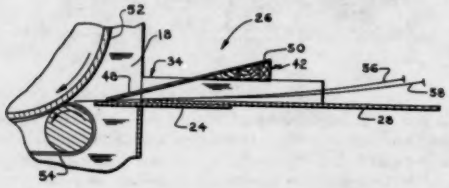
A masking device is provided for reducing contrast of a projected slide transparency image which includes a photoconductive-liquid crystal layer which is exposed to the slide transparency image by a masking light to form a masking image thereon. Subsequently, a projection light is projected through the masking image formed on the sandwich structure and through the slide transparency to form a reduced contrast image on a photosensitive surface.

3,758,208

ENTRY DEVICE FOR REPRODUCTION MACHINE

Wilber B. Robnolte, 920 E. Elm St., Lima, Ohio

Continuation-in-part of Ser. No. 82,738, Oct. 21, 1970, Pat. No. 3,634,010. This application Jan. 10, 1972, Ser. No. 216,657
Int. Cl. G03b 27/02
U.S. Cl. 355—97 10 Claims



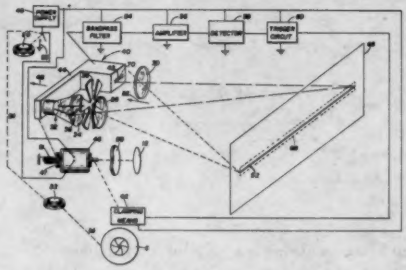
An entry device is provided for a reproduction or copying machine, particularly of the type capable of copying large sheets of material. The entry device is mounted on a feed table adjacent an entry opening into the machine. The device includes a pair of supports located adjacent the ends of the entry opening with a bar supported at its ends by the supports and located above the table surface. An entry strip having an edge portion affixed to the bar has a forward edge extending near or into the opening. The strip flattens and smooths sheet material being fed into the machine and also supports material coming out of the machine above the feed table so that new sheet material can be fed into the machine as other material is emerging.

3,758,209

AUTOMATIC FOCUSING DEVICE

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 853,093, Aug. 26, 1969, Pat. No. 3,599,552. This application Feb. 10, 1971, Ser. No. 114,335
Int. Cl. G01c 3/08
U.S. Cl. 356—4 16 Claims



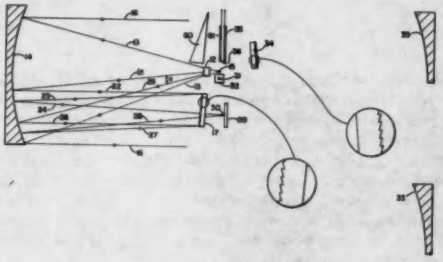
An apparatus for use with a camera or the like for determining the distance to a subject of interest. First and second lenses are provided. Modulated radiant energy of predetermined frequency is transmitted through the first lens toward the subject. The reflected image from the subject is passed by the second lens and received by a light sensitive transducer. The energy emitting source and the light sensitive transducer are displaced in unison to vary the modulated radiant energy received by the light sensitive transducer. Electronic detection circuitry is coupled to the light sensitive transducer to develop an output signal when the modulated radiant energy incident on the light sensitive transducer is at a maximum. The output signal is applied to arrest further displacement of the energy emitting source and the light sensitive transducer.

3,758,210

SUPERVISORY APPARATUS FOR SPECTRAL ANALYSIS

Robert A. Weagant, Chelmsford, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 6, 1970, Ser. No. 61,756
Int. Cl. G01j 3/18; G01n 21/34
U.S. Cl. 356—51 10 Claims



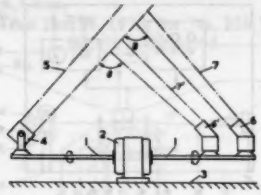
An assemblage of diffractors and detector arrays associated with off-axis paraboloidal reflecting means to give a multispectral scanner of unprecedentedly wide wavelength range. Light from the source to be scanned is distributed to detection channels in the visible, near infrared, and thermal or far infrared wavelength regions by a novel spatial beam splitter, and common to two of the detector channels is a component which functions as a simple reflector in one channel and a diffracting reflector in the other, thus performing a further beam splitting function on the basis of wavelength rather than spatial position.

3,758,211

ATMOSPHERIC VISIBILITY MEASURING APPARATUS

Douglas Alfred Bateman, Berkshire, Crowthorne; Geoffrey John Burrell, Hampshire, Fleet, and Donald Edward Killick, Surrey, Camberley, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Jan. 13, 1972, Ser. No. 217,596
Int. Cl. G01n *21/00, 21/48*
U.S. Cl. 356—103 8 Claims



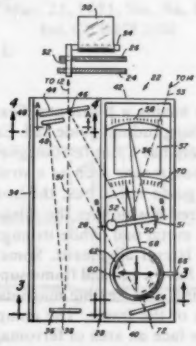
The apparatus comprises a light projection means for projecting a beam of light into the atmosphere along a prescribed beam path, an optical detection means arranged to respond to light scattered by particles in the atmosphere from within another beam path surrounding an optical axis of the detector, and control apparatus for turning the light beam and the optical axis of the detection means in unison about a horizontal axis which extends substantially from the projection means to the detection means. The light projection means and the optical detection means are relatively mounted so that the optical axis of the detection means always intersects the light beam at a constant angle and at a constant range from the detection means. The control apparatus may comprise a rotatable horizontal shaft supporting the light projection means and the optical detection means. Alternatively a fixed light projector and detector may be arranged to co-operate with two mirrors provided on a rotatable horizontal shaft the mirrors being arranged to direct the light beam into the prescribed beam path and to reflect the scattered light onto the detector. The projection means and the detection means, or just the mirrors which form a part thereof, may be mounted separately and maintained in relative alignment by a follow-up servo system.

3,758,212

HAND-HELD OPTICAL TRIANGULATION POSITION-DETERMINING INSTRUMENT

Tom E. Messler, 5740 S. 72 East Ave., and J. P. Messler, 4410 E. 46 Pl., both of Tulsa, Okla.

Filed Oct. 21, 1971, Ser. No. 191,362
Int. Cl. G01c *1/00*
U.S. Cl. 356—145 6 Claims



A self-contained, hand-held instrument for determining geographic position in terms of the compass bearing to a first landmark, and the horizontal angle between the bearings to the first and a second landmark, comprises a frame, proximal and distal sighting indices, a first mirror adjacent the distal index and a seond mirror rotatable about a vertical and a horizontal axis for presenting an image of the second landmark in the first mirror, the first landmark is sighted over the top of the first mirror. Means are provided to read the angle of the second mirror.

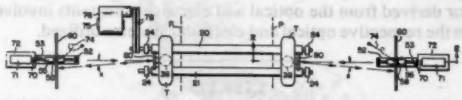
A compass has a casing which is rotatably mounted in the frame. An index and a pointer are mounted on the casing. Mirror means are provided for presenting an image of the compass index and graduations near the area of the first mirror. The compass pointer is long compared to the radius of the compass graduation circle.

3,758,213

METHOD AND APPARATUS FOR TESTING FRONT WHEEL ALIGNMENT OF AUTOMOTIVE VEHICLES

Roger MacPherson, 148 Millbank St., Rochester, N.Y., and Pierre A. Alsina, 3480 Elmwood Ave., Rochester, N.Y.

Filed July 27, 1971, Ser. No. 166,392
Int. Cl. G01b *11/26*
U.S. Cl. 356—155 10 Claims



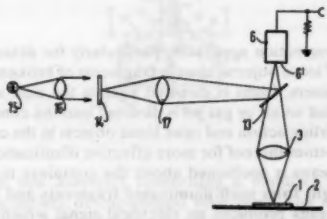
The front wheels of the vehicle are driven onto a pair of spaced, parallel rollers, one of which may be driven by an electric motor to effect rotation of the front wheels while the vehicle is standing motionless. The hubcaps are removed and a plane mirror is secured by a magnet to the hub of each front wheel to rotate therewith in a plane perpendicular to the associated spindle. A beam of light is shone onto each mirror through a small central hole in a chart that is positioned outwardly from the wheel, and this beam is reflected back onto the associated chart as a point of light which is offset horizontally and vertically from the hole in proportion to the toe and camber of the wheel. A removable fixture is provided for aligning the reference light beams and charts.

3,758,214

METHOD AND APPARATUS FOR THE AUTOMATIC MEASUREMENT OF DISTANCES SUCH AS LINE WIDTH OR EDGE DISTANCES OF SMALL OBJECTS

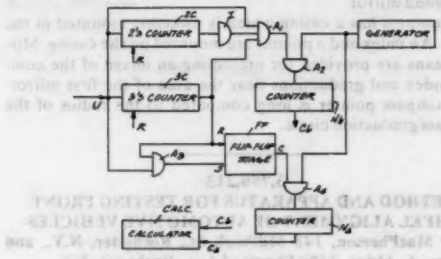
Dietmar Mangelsdorf, Geretsried, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Nov. 24, 1971, Ser. No. 201,696
Claims priority, application Germany, Dec. 1, 1970, P 20 59 106.4
Int. Cl. G01b *11/04*
U.S. Cl. 356—160 10 Claims



A method and apparatus for automatic measurement of distances such as line width or edge dimensions of small objects, utilizihg an optical system, for example a microscope, in

which the resulting image is transferred to the photo-sensitive layer of a vidicon tube of a television camera and dissected thereby into picture lines for evaluation, in which the number of predetermined pulses suitably produced during the scanning from one end to the other of a calibrated distance,



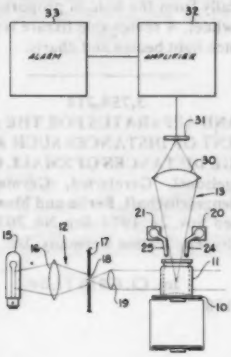
and the number of pulses so produced during the scanning of a distance to be measured are respectively counted and the quotient of the pulse totals so obtained is multiplied by a factor derived from the optical and electrical constants involved in the respective optical and electrical systems utilized.

3,758,215

AERODYNAMIC MEANS FOR RAISING AND SWIRLING LOOSE OBJECTS IN EMPTY GLASS CONTAINERS AND OPTICAL MEANS FOR DETECTING THE PRESENCE OF SAME

Miller J. Paruolo; John J. McMackin, and James H. McMeekin, all of Brockway, Pa., assignors to Brockway Glass Company, Inc., Brockway, Pa.

Filed June 1, 1972, Ser. No. 258,865
Int. Cl. G01n 21/16, 21/24
U.S. Cl. 356—196 **9 Claims**



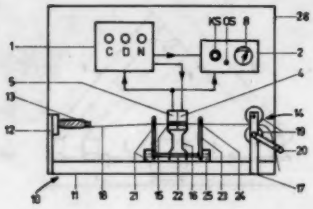
Optical inspection apparatus, particularly for detecting the presence of loose objects, usually fragments of broken glass, in glass containers. Light is directed against the side wall of a container and an air or gas jet is directed into the container to create a swirling action and raise loose objects in the container from the bottom thereof for more effective illumination. Light sensitive means is positioned above the container to pick up reflected light from such illuminated fragments and the light sensitive means produces an electrical signal which may be employed to actuate an alarm, to stop the operation of the conveyor or other mechanism, or to operate a rigid mechanism for diverting containers which may have loose glass therein.

3,758,216

ELECTRONIC APPLIANCE FOR SETTING AND CHECKING ELECTRONIC YARN CLEARERS

Hansruedi Stutz, Dietlikon, Switzerland, assignor to Aktiengesellschaft Gebruder Loepfe, Zurich, Switzerland

Filed Apr. 21, 1972, Ser. No. 246,303
Claims priority, application Switzerland, May 27, 1971, 7674/71
Int. Cl. G01n 21/32; D01h 13/22
U.S. Cl. 356—200 **13 Claims**



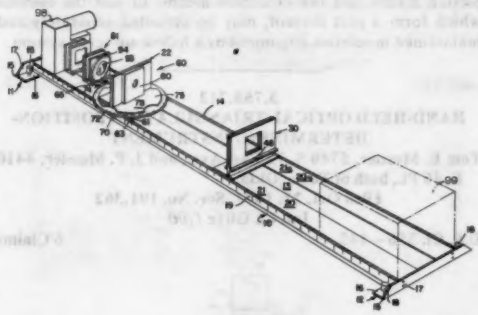
An electronic apparatus for setting and checking electronic yarn clearer systems, comprising a controllable d.c. amplifying channel having a signal input terminal and at least one control input terminal; a negative feedback loop operatively coupled to said controllable d.c. amplifying channel for compensating for a signal level representing a constant base signal produced by a yarn sensing means of said electronic yarn clearer, said negative feedback loop comprising a switch and a condenser for holding or storing temporarily a compensation potential.

3,758,217

OPTICAL BENCH AND COMPONENTS THEREFOR

Paul A. Stokstad, 85 Estabrook, San Leandro, Calif.

Filed Oct. 20, 1971, Ser. No. 190,806
Int. Cl. G02b 27/32
U.S. Cl. 356—256 **23 Claims**



An optical bench having a horizontal flexible plastic magnetic surface and a longitudinal guide rail. Each of a plurality of component carriers has a flat ferromagnetic metal pad on its bottom surface and means such as a straight edge for engagement with the guide rail. Thus, the component carriers are held in any desired position by the attraction of the magnetic plastic for the metal pad, while its engagement with the guide rail provides lateral alignment. Some, at least, of the component carriers have a vertical frame supported by the flat pad, a central opening, and flexible magnetic plastic surfaces on at least one face of the frame. The components comprise plates having on one face an area of ferromagnetic metal, and an optical instrument that aligns with the opening on the carrier. Similar attachments include a disc component parallel to the bottom pad and having a plastic magnetic surface for en-

gagement by another disc that has a metal pad and carries a component and is aligned by a center pin to the magnetic disc and is held in any position thereon by magnetic attraction. Also rotatable components are provided which are circumscribed within the optical opening and aligned by it.

3,758,218

CARTRIDGE-TYPE LIPSTICK CONTAINER OR THE LIKE

John W. Pfrommer, Cheshire, and Robert C. Geisel, Windsor, both of Conn., assignors to Eyelet Specialty Company, Wallingford, Conn.

Filed Jan. 26, 1972, Ser. No. 220,770
Int. Cl. A45d *40/06*
U.S. Cl. 401—86 **21 Claims**

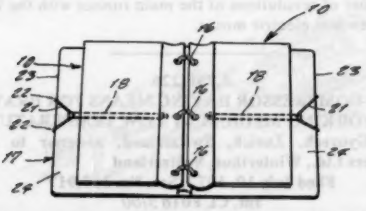
The invention contemplates an improved base-end construction for a basic lipstick assembly, whereby the basic lipstick assembly may serve universally for a relatively wide variety of different customer requirements, in some of which the basic assembly is a replaceable refill cartridge, and in some which the basic assembly receives merely a decorative or plain shell, which may be of metal or of plastic. Whatever the ultimate application, the invention features coacting formations on the base end of the basic assembly, and in the bore of the base housing or casing member to which it is assembled, whereby coaxially stabilized positioning of the parts is assured while at the same time achieving a circumferentially distributed axial-locating abutment reference and a driving (i.e., non-rotative) relation between the outer and inner assembled parts.

3,758,219

LOOSE LEAF NOTEBOOK SHEET LIFTER

Robert Stasio, 2302 85th St., and Thomas Butera, Jr., 182 Bay 11th St., both of Brooklyn, N.Y.

Filed Mar. 23, 1971, Ser. No. 127,137
Int. Cl. B42f *3/00*
U.S. Cl. 402—80 L **1 Claim**



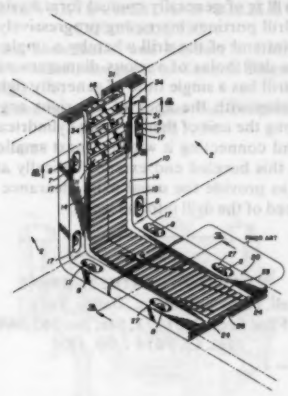
A device for lifting or turning the pages of a loose leaf notebook simultaneously so that the openings of the individual pages do not get caught and torn by the notebook rings, the device consisting of tensioning hook units which at one end are anchored to the notebook rings and at their other ends are hooked over the notebook edges so that when the notebook is closed, all the pages move on the rings simultaneously as one unit to prevent individual sheets or pages getting hung up on the hooks.

3,758,220

ELASTOMERIC EXPANSION JOINT

Richard D. Hein, Wabash, Ind., assignor to The General Tire & Rubber Company, Akron, Ohio

Filed Jan. 27, 1972, Ser. No. 221,342
Int. Cl. E01c *11/12*
U.S. Cl. 404—67 **3 Claims**



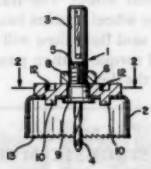
A reinforced elastomeric expansion joint is constructed so as to flex or bend by utilizing, as an internal rigid reinforcement, a series of spaced narrow plates joined by flexible means such as wire cable. The narrow plates combine to effect sufficient support, but the presence thereof within the joint does not preclude the joint from being bent when required, such as for connecting the intersection of a curb and gutter on a bridge or roadway.

3,758,221

HOLE SAW ASSEMBLY

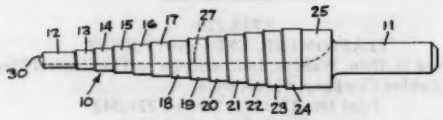
Avram M. Meshulam, Baltimore, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Filed Dec. 29, 1971, Ser. No. 213,359
Int. Cl. B23b *51/04*
U.S. Cl. 408—204 **1 Claim**



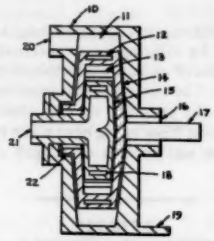
A hole saw assembly comprising a mandrel adapted to receive a variety of cup-shaped hole saws. The mandrel includes a pilot drill and a spindle adapted to be mounted within the chuck of a power tool. The assembly also includes a lock plate for providing a drive connection between the mandrel and the hole saw.

3,758,222
DRILL BIT
Harry C. Oakes, P.O. Box 331, Wyoming, N.Y.
Filed Dec. 30, 1971, Ser. No. 214,054
Int. Cl. B23b *51/00*
U.S. Cl. 408—224 **1 Claim**



A drill bit for drilling holes in metal sheets or panels in which the drill is of generally conical form having a series of cylindrical drill portions increasing progressively in diameter from the point end of the drill whereby a single drill may be employed to drill holes of various diameters within a given range. The drill has a single flute of generally right-angle form in cross section with the apex of the right angle extending generally along the axis of the bit. Each cylindrical portion has a beveled end connecting it with the next smaller cylindrical portion and this beveled end extends helically at a relatively small angle to provide the usual axial clearance and to limit the rate of feed of the drill into the work.

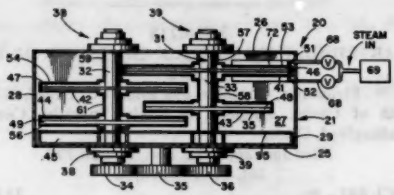
3,758,223
REACTION ROTOR TURBINE
Michael Eskeli, 6220 Orchid Ln., Dallas, Tex.
Filed Sept. 30, 1971, Ser. No. 185,060
Int. Cl. F01d *1/00, 1/06*
U.S. Cl. 415—1 **6 Claims**



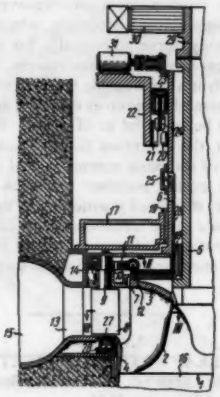
A method and apparatus for a reaction type turbine rotor, employed in power generation devices, such as steam turbines, hydraulic turbines, or gas turbines. The pressurized fluid is supplied to within said turbine reaction rotor by employing a fluid nozzle arranged to discharge within said wheel in a direction that is approximately the same as the direction of rotation of said rotor wheel. The fluid is then discharged from the rotating rotor wheel nozzles backward away from the direction of rotation; said fluid then will generate a torque on said rotor wheel; said torque is then passed to the rotor shaft as the work output of the device.

3,758,224
MULTI-STAGE STEAM TURBINE
Maurice Migneault, 69 Bowers St., Nashua, N.H.
Filed Oct. 28, 1971, Ser. No. 193,397
Int. Cl. F01d *1/24*
U.S. Cl. 415—66 **10 Claims**

A multi-stage steam turbine, about the size of an automobile engine, is contained in a lightweight, separable housing, the housing having a driven shaft in the lower half with the bladed rotors thereon. Each disc-like rotor is encircled by an individual, cylindrical housing which forms a turbine blade chamber therewith and the housings are supported on the lower half of the casing. Each successive stage is of decreasing volume. Only the first stage rotor has blades on both side faces; the first stage blades are driven by multiple solenoid controlled steam jets; and the other rotors are driven by steam from preceding stages.



3,758,225
HYDRAULIC PUMP-TURBINE
Lev Yakovlevich Kazachkov, and Jury Abramovich Lesokhin, both of Leningrad, U.S.S.R.
Continuation of Ser. No. 836,434, June 25, 1969, abandoned.
This application Aug. 16, 1971, Ser. No. 172,217
Claims priority, application U.S.S.R., July 8, 1968, 1254747
Int. Cl. F01d *1/24;* **F04d** *25/16*
U.S. Cl. 415—69 **10 Claims**

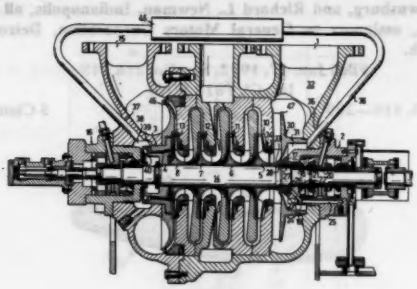


A hydraulic pump-turbine in which the blades of the guiding apparatus during turbine operation are arranged in a holder which during pump operation rotates at a higher speed than the number of revolutions of the main runner with the help of an independent electric motor.

3,758,226
TURBO-COMPRESSOR HAVING MEANS FOR DRAWING IN WORKING MEDIUM AT LOW TEMPERATURE
Gabor Gyurech, Zurich, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed July 10, 1972, Ser. No. 269,917
Int. Cl. F01d *3/00*
U.S. Cl. 415—104 **9 Claims**

The bearing housing on the delivery side of the turbocompressor is surrounded in spaced relation by a bulkhead to define a chamber which communicates at one end with the

suction branch. The opposite end of the chamber is connected to a source of working medium of high temperature so that



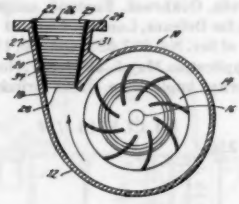
heated working medium can flow over the bearing housing to maintain the lubricant therein in a fluid state and thereby prevent clogging in the drain-off ducts.

3,758,227

DEVICE FOR VARYING THE VOLUTE AND THROAT OF A CENTRIFUGAL PUMP

Henry M. Pollak, and Robert S. Pollak, both of c/o American Machine and Tool Co., Inc. Fourth Ave. and Spring St., Royersford, Pa.

Filed Nov. 15, 1971, Ser. No. 198,928
Int. Cl. F04d *17/00, 29/44*
U.S. Cl. 415—121 **12 Claims**



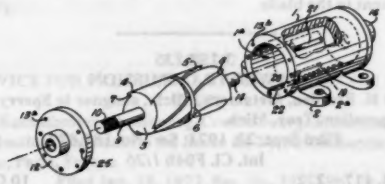
A device for varying the discharge area perpendicular to the normal flow in the passage in a centrifugal pump comprising a coiled member.

3,758,228

ROTARY ENGINE

Daniel H. Post, P.O. Box 186, 536 Bentley Dr., Nash, Tex.

Continuation-in-part of Ser. No. 20,194, May 11, 1970, abandoned. This application Mar. 17, 1972, Ser. No. 235,727
Int. Cl. F01d *1/30*
U.S. Cl. 415—153 **2 Claims**



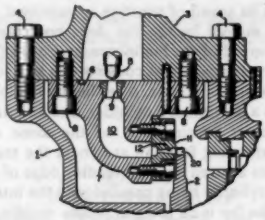
A rotary engine which may be driven by pressure fluid such as compressed air, steam or hydraulic fluid under pressure comprising an integral rotor rotatably mounted in a housing. The rotor has forward and reverse vanes machined or cast thereon, which vanes are uniform in depth from the ends of the rotor to the center thereof where they terminate. Appropriate grooves are formed in the wall of the housing to admit fluid under pressure to the forward and reverse ends thereof, and an exhaust groove is formed in the wall of the housing running the full length thereof to provide a common exhaust groove for the fluid admitted to both the forward and reverse ends of the rotor. An accelerator valve is provided for regulating the admission of pressure fluid, and a forward and reverse valve is provided between the accelerator valve and the housing which may be actuated by an appropriate lever or petal to direct the pressure fluid to either the forward or reverse end of the rotor.

3,758,229

TURBINE VALVE CHEST AND NOZZLE PLATE CONSTRUCTION

Philip N. Price, Leominster, and Herbert N. Hoffman, Lunenburg, both of Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 19, 1971, Ser. No. 200,305
Int. Cl. F03b *1/04*
U.S. Cl. 415—217 **4 Claims**



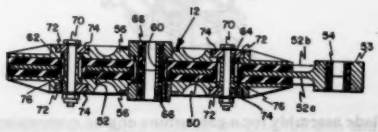
A small steam turbine with a separate external bolted-on valve chest is arranged to support an internally mounted nozzle box with an adjustable nozzle plate. The valve chest, nozzle box and nozzle plate are manufactured as a sub-assembly and attached to the turbine casing as a separate unit. The nozzle plate can subsequently be adjusted for concentric alignment with the first-stage turbine buckets to compensate for accumulated dimensional variations due to manufacturing tolerances.

3,758,230

ROTOR SYSTEM HAVING VISCOELASTIC LEAD-LAG DAMPER

James L. Potter, 2014 W. 8th St., Erie, Pa.

Continuation-in-part of Ser. No. 84,003, Oct. 26, 1970, abandoned. This application May 13, 1971, Ser. No. 142,953
Int. Cl. B64c *27/42*
U.S. Cl. 416—107 **5 Claims**



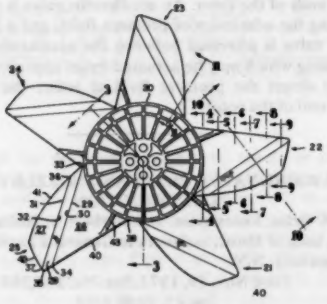
A rotor system for a helicopter or the like vertical lift aircraft in which lead-lag motions of a blade are effectively damped by a body of viscoelastic material that is stressed preferentially in shear by the lead-lag movement of the blade.

3,758,231

FLEXIBLE FAN

John W. Barnstead, Brazil, Ind., assignor to Vernco Corporation, Columbus, Ind.

Filed July 15, 1971, Ser. No. 162,912
Int. Cl. F01d 5/28
U.S. Cl. 416—132 28 Claims



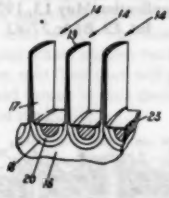
A fan which, because of the particular construction of its blades, will automatically "unload" by flexure of portions only of its blades as its speed of rotation is increased, whereby the volume of air moved by the fan does not increase proportionally as the speed of the fan increases. Each of the identical blades has a reverse twist and consists of a stiff leading region formed as a portion of a cone, a resiliently flexible trailing region formed as a portion of a cylinder, and an intermediate region formed as a continuation of the same cylinder and rectilinearly extending from an area near the trailing edge of the blade root to an area near the leading edge of the blade tip, the axis of the cylinder being parallel with the intermediate region. Ideally, the fan is an integral plastic molding and the difference in flexibility of the several regions is achieved by making the leading region uniformly thick, the trailing region uniformly thin and the intermediate region of increasing thickness as it progresses between the trailing region and the leading region. The reverse twist feature is obtained by having the pitch at the tip of each blade greater than the pitch at its root.

3,758,232

BLADE ASSEMBLY FOR GAS TURBINE ENGINES

John Stanley Wallett, Allestree, England, assignor to The Secretary of State for Defence, London, England

Division of Ser. No. 794,138, Jan. 27, 1969, Pat. No. 3,616,508. This application Apr. 23, 1971, Ser. No. 136,705
Int. Cl. F01d 5/34
U.S. Cl. 416—213 4 Claims



A blade assembly for a gas turbine engine comprising an annulus of blades in which a blade row is formed from an annular array of pieces, each comprising a blade flank, an interconnecting portion, and an opposing flank of an adjacent blade. The pieces are made from fiber reinforced material and filament winding techniques are utilized in making the individual pieces. The blade assembly may be used for compressor or turbine rotors or stators.

3,758,233

VIBRATION DAMPING COATINGS

Kenneth R. Cross, Indianapolis; John R. Cavanagh, Brownsburg, and Richard L. Newman, Indianapolis, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 17, 1972, Ser. No. 218,219
Int. Cl. F01d 5/10
U.S. Cl. 416—229 5 Claims

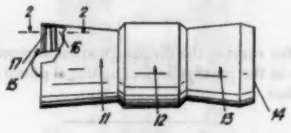
Nickel, cobalt, aluminum, iron-nickel, molybdenum, and titanium alloy articles are provided with a plasma sprayed coating for increasing the vibration damping capacity thereof. The coating consists of a outermost layer portion formed of an oxide ceramic or refractory carbide and an intermediate portion formed of a mixture of one of the above alloys and the material forming the outermost layer. In the preferred embodiment, the intermediate portion consists of two or more discrete layers, with the layers having decreasing alloy content and increasing oxide ceramic content toward the outermost layer portion.

3,758,234

FIBER BLADE WITH LEADING EDGE REINFORCEMENT

John R. Goodwin, Ockbrook, England, assignor to The Secretary of State for Defence, London, England

Continuation of Ser. No. 867,653, Oct. 20, 1969, abandoned. This application May 5, 1972, Ser. No. 250,744
Claims priority, application Great Britain, Oct. 22, 1968, 50,058/68
Int. Cl. F01d 5/14
U.S. Cl. 416—230 3 Claims



This invention concerns a leading edge reinforcement for a fiber reinforced blade suitable for use in a gas turbine engine. The reinforcement comprises two strips of metal joined together at and adjacent to an edge which is shaped to form the leading edge of the blade. At least a part of the remaining portion of the metal strip serves for the attachment of the reinforcement to the blade.

3,758,235

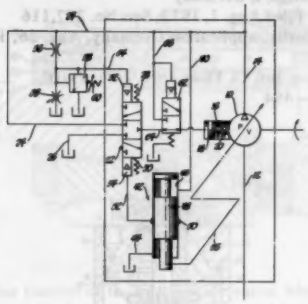
POWER TRANSMISSION

Robert H. Breeden, Metamora, Mich., assignor to Sperry Rand Corporation, Troy, Mich.

Filed Sept. 22, 1971, Ser. No. 182,677
Int. Cl. F04b 1/26
U.S. Cl. 417—222 10 Claims

A displacement adjusting system for a variable displacement pump utilizes a pair of bleed circuits connected as a hydraulic bridge to control the servomotor of the pump so as to maintain a balance between the pressure levels generated in the command bleed circuit and in the feedback bleed circuit.

The adjustable restriction in the feedback circuit is of the laminar flow type, its length being adjusted with changes in pump displacement. Input torque is limited by a relief valve



acting on the control pressure in the command circuit. Pump outlet pressure is limited by a valve which disables the bleed circuits. The system is applicable to both one-way and reversible displacement pumps.

3,758,236

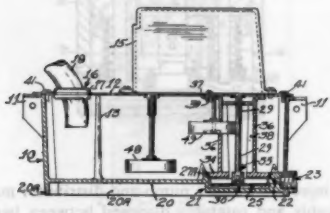
CONDENSATE PUMP

Frederick N. Zimmerman, Deerfield, Ill., assignor to March Manufacturing Company, Glenview, Ill.

Filed Oct. 14, 1971, Ser. No. 189,122

Int. Cl. F04b *35/00*

U.S. Cl. 417—360 **13 Claims**



A condensate pump unit for use with air-conditioning equipment and the like. A reservoir or sump is molded from plastics material with a pump chamber well formed as an integral part of the bottom wall. A pump motor is carried on a cover plate for the sump and has a shaft descending to the well to rotate an impeller therein. The pumping chamber is completed by a closure formation which is an integral part of an elongated pillar construction attaching to, and also lending support to the sump cover plate, in such manner that the motor and impeller are removable with the cover as a subassembly.

3,758,237

DEVICE FOR PRODUCING A PULSATING FLOW OF A FLUID

Jean Kachelhoffer, Strasbourg-Cronenbourg, France, assignor to Institut National De La Sante Et De La Recherche Medicale, Paris, France

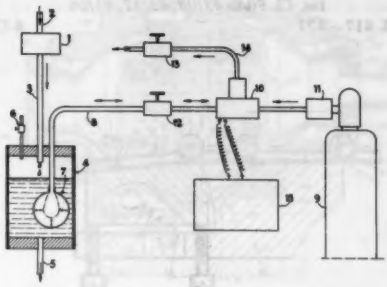
Filed Jan. 18, 1972, Ser. No. 218,719

Claims priority, application France, Jan. 18, 1971, 7101448

Int. Cl. F04b *43/00*

U.S. Cl. 417—394 **5 Claims**

Device for producing a pulsating flow of a fluid. The device comprises a vessel receiving the fluid and an inflatable bag within the vessel. The interior of the bag is connected to means for producing a pulsating gas flow including a gas valve controlled electrically by a pulse generator, the frequency and



ratio between the work time and rest time of the generator being variable. The resulting pulsating fluid issues from the vessel by way of an outlet.

3,758,238

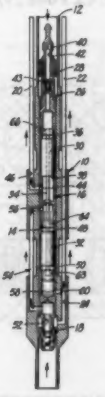
FREE TURBINE PUMP

John W. Erickson, Huntington Beach, and Francis Barton Brown, La Crescenta, both of Calif., assignors to Kobe, Inc., Huntington Park, Calif.

Filed July 24, 1972, Ser. No. 274,594

Int. Cl. F04b *47/14*

U.S. Cl. 417—408 **7 Claims**



A turbine oil well pump capable of being run into and out of the well hydraulically. The pump includes an axial flow turbine and an axial flow pump interconnected in end-to-end relation with the turbine above the pump. The turbine has a power fluid intake adjacent its upper end and a spent power fluid exhaust adjacent its lower end. The pump has a well fluid inlet adjacent its upper end, and adjacent the power fluid exhaust, and has a production fluid outlet adjacent its lower end.

3,758,239

CONTROLLED PERISTALTIC PUMP

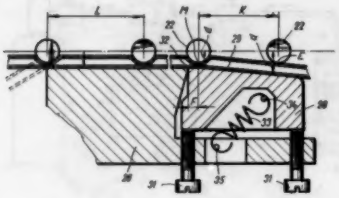
Jiri Hrdina, Praha, Czechoslovakia, assignor to Cskoslovenska akademie ved, Praha, Czechoslovakia

Filed Dec. 21, 1971, Ser. No. 210,371

Claims priority, application Czechoslovakia, Dec. 23, 1970, 8746/70

Int. Cl. F04b 43/08, 43/12, 45/06

U.S. Cl. 417—477 6 Claims



In peristaltic pumps, using a number of mobile occluding organs which press a resilient hose against a support and which cause the advance of a medium within this hose, an additional support is provided from the limit point of occlusion up to the last contact point with the hose. The distance of the support from the track of the occluding organs being in inverse proportion to the required speed of advance of the medium in this hose.

3,758,240

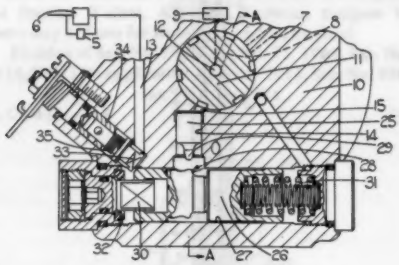
LIQUID FUEL INJECTION PUMPING APPARATUS

Kenneth Albert Walters Kemp, and Stanislaw Jan Antoni Sosnowski, both of Ealing, London, England, assignors to C.A.V. Limited, Birmingham, England

Filed Aug. 31, 1971, Ser. No. 176,607

Int. Cl. F04b 29/00

U.S. Cl. 417—462 2 Claims



A fuel injection pumping apparatus for an internal combustion engine includes a piston movable under the action of a fluid pressure which varies in accordance with the speed at which the apparatus is driven. The piston controls the maximum amount of fuel which can be fed to the engine by acting as a stop for a shuttle piston. A spring is provided to load the piston against the action of fuel pressure and a resilient seal is provided to engage the end of the piston subjected to the fluid pressure to initially shield a portion of the piston from the fluid pressure. In this manner a higher initial value of fluid pressure is required to effect initial movement of the piston.

3,758,241

FUEL INJECTION PUMP FOR MULTI-CYLINDER INTERNAL COMBUSTION ENGINES

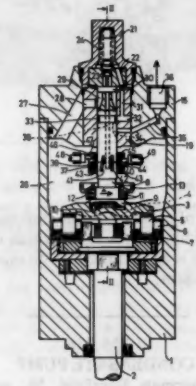
Franz Eheim, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

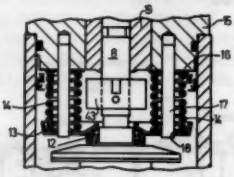
Filed Aug. 1, 1972, Ser. No. 277,116

Claims priority, application Germany, Aug. 26, 1971, P 21 42 704.3

Int. Cl. F04b 7/04, 7/06, 39/10

U.S. Cl. 417—494 6 Claims





In a fuel injection pump a pump-and-distributor member is axially movably and rotatably disposed between two axially parallel compression springs which are spaced apart 180° with respect to the pump axis and which, through a common yoke, oppose the pressure strokes of said member. A control sleeve is slidably and rotatably arranged on said pump-and-distributor member for altering the starting moment and the period of injection. The angular and axial displacement of the control sleeve is effected by actuating elements connected to said control sleeve and arranged radially outwardly thereof.

3,758,242

ROTARY PISTON MACHINE

Carl Verner Ohrberg, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Feb. 25, 1972, Ser. No. 229,271

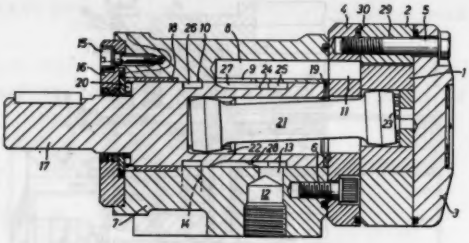
Claims priority, application Germany, Mar. 8, 1971, P 21 10 863.4

Int. Cl. F03c 1/02

U.S. Cl. 418—61 4 Claims

The invention relates to a rotary piston machine in which an externally toothed wheel and an internally toothed ring between them form displacement chambers, the toothed wheel being connected by a universal joint shaft to a rotary slide valve. The connection between the toothed wheel and the associated rotary slide valve results in a certain amount of play. In the case of a pump, the rotary slide valve leads the toothed wheel in the rotary direction. In the case of a motor,

the rotary slide valve lags the toothed wheel in the rotary direction. This leading and lagging, although only slight, e.g., 1°, results in the machine suffering a loss in capacity because



of imprecise control of the rotary slide valve. Means are provided wherein the lead or lag is compensated for by offsetting the ring or wheel member a predetermined circumferential distance from a neutral position.

3,758,243

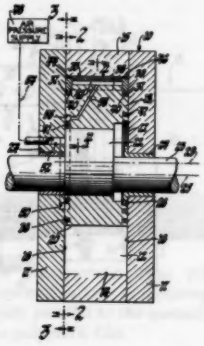
ROTARY MACHINE APEX SEAL

Ralph G. Fox, Jr., Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 24, 1972, Ser. No. 247,189

Int. Cl. F01c *19/02*; F04c *15/00, 27/00*

U.S. Cl. 418—76 **5 Claims**



A rotary machine apex seal having an air directing passage connected by communicating passages in the rotor and housing to an external air pressure supply for directing air pressure to impinge upon the machine's internal peripheral wall to provide a cushion of air between the apex seal and this wall.

3,758,244

ROTARY PISTON ENGINE

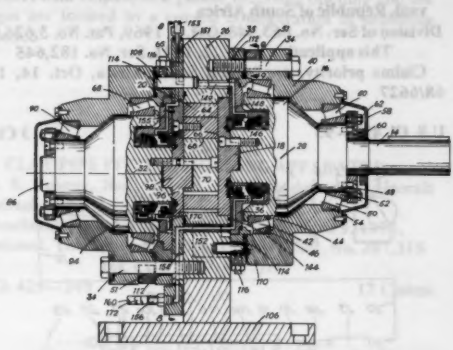
Karol Gerber, Cudahy, Wis., assignor to Koerper Engineering Associates, Inc., Brookfield, Wis.

Filed Apr. 8, 1971, Ser. No. 132,306

Int. Cl. F01c *1/10*; F03c *3/00*; F04c *1/06*

U.S. Cl. 418—107 **7 Claims**

Crown teeth of a driving rotor are received between the spur teeth of an idler rotor which rotates on an offset axis. The respective rotors are disposed in a casing provided with a crescent-shaped baffle disposed between the teeth of the respective rotors where the teeth have clearance due to the offset. Transmission of rotary motion may either be effected by contact between the said teeth or through an external jack shaft. Rotary seals are close to the axes of the respective rotors, anti-friction bearings being close to the plane in which the rotor teeth mesh but radially outside of the seals to



minimize the moment arms to which the rotors are subject. The rotary seals are provided with flushing and drainage connections.

3,758,245

HYDRAULIC PRESS FOR COMPRESSION OF POWDER

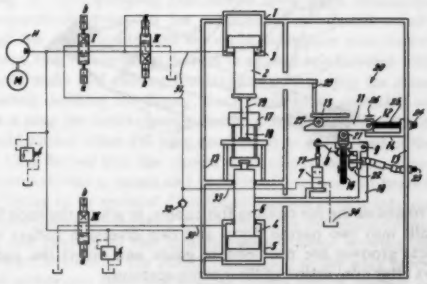
Rolf Hermes, Rheydt-Giesenkirchen, Germany, assignor to Mannesmann-Meer Aktiengesellschaft, Monchengladbach, Germany

Filed July 1, 1971, Ser. No. 158,783

Claims priority, application Germany, July 3, 1970, P 20 33 891.4

Int. Cl. B30b *11/02, 15/14*

U.S. Cl. 425—78 **10 Claims**



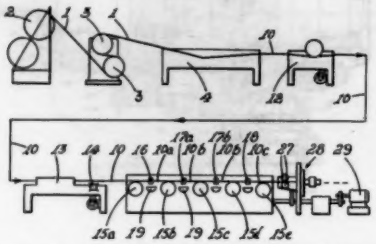
Hydraulic press for compression of powder having upper punch, lower punch and die; die and upper punch operated by pistons respectively in two cylinders, there being hydraulic conduit means interconnecting the two cylinders for operating the die moving piston in dependency upon upper punch movement. A valve is connected to the conduit means and controlls a hydraulic bleeder path. The valve is actuated by means connected to be responsive to the relative positions of the first and second pistons, to control the characteristics of that defining the dependency of die movement upon movement of the upper punch.

3,758,246

APPARATUS FOR PRODUCING WAX MATCH SHAFTS

Cecil Kessler, Johannesburg, Republic of South Africa, assignor to Chet Industries (proprietary) Limited, Transvaal, Republic of South Africa

Division of Ser. No. 863,948, Oct. 6, 1969, Pat. No. 3,626,047.
This application Sept. 22, 1971, Ser. No. 182,645
Claims priority, application South Africa, Oct. 14, 1968, 68/6627
Int. Cl. B31f 1/00
U.S. Cl. 425—93 3 Claims



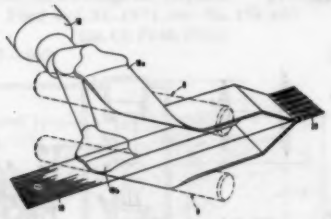
Apparatus for producing wax match shafts, comprising a shaping die having an aperture at least part of which has a polylateral, preferably a quadrilateral, cross-sectional configuration with convex sides.

3,758,247

APPARATUS FOR MAKING FLAT CABLES BY EXTRUSION

Axel W. Deegen, Boeblingen, Germany, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 23, 1971, Ser. No. 136,934
Claims priority, application Germany, Apr. 23, 1970, P 20 19 629.6
Int. Cl. B29f 3/10
U.S. Cl. 425—114 8 Claims



Crosshead die for coating flat cables, in which the melt flow is split into two partial flows and two diversion rollers with helical grooves are provided to guide and divert the partial flows after conversion of their cross-sections.

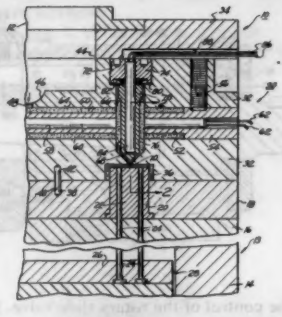
3,758,248

INJECTION PLASTIC FEEDER

Herman J. Drazick, 34480 Commerce Rd., Fraser, Mich.

Continuation of Ser. No. 118,688, Feb. 25, 1971, abandoned.
This application Dec. 20, 1972, Ser. No. 316,773
Int. Cl. B29f 1/08, 1/05
U.S. Cl. 425—145 1 Claim

An injection molding apparatus including upper and lower die plates and at least one die cavity therein; a main feeder channel is provided in one of the die plates to feed plasticized material to the die cavity; the feeder channel intersects a valve assembly having a chamber in communication with the die cavity through a metering orifice; a needle valve is disposed in the valve assemble adapted to selectively open and close the orifice in response to a pressure differential for shut-off of



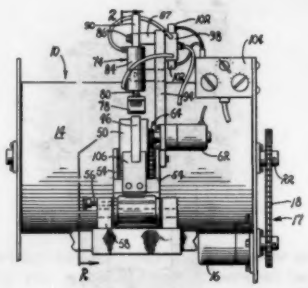
plastic material flow from the valve chamber into the die cavity at the parting line of the cavity to prevent drooling of material and flash production.

3,758,249

CHOPPER FOR FORMING RUBBER SLUGS

Gordon L. Newby, 320 Industrial St., Bakersfield, Calif.

Filed Feb. 7, 1972, Ser. No. 224,115
Int. Cl. B29c 3/06
U.S. Cl. 425-155 6 Claims



A chopper for forming rubber slugs of precisely determined masses, characterized by a stripper unit for extracting a continuous, uniformly dimensioned strip of rubber from an endless sheet provided about a roller of a rubber mill, a platen roller adjacent to the rubber mill and driven at a substantially constant angular velocity for receiving the strip in an adhering relationship at its periphery, and a reciprocating knife for transversely severing the strip into slugs of predetermined lengths. A particular feature of the invention resides in the use of a driven platen roller for uniformly tensioning a uniformly dimensioned, continuous strip of rubber as it is derived from a rubber mill, and cyclically operable knife for severing the strip at selected intervals, whereby the mass of each of the resulting slugs is precisely determined.

3,758,250

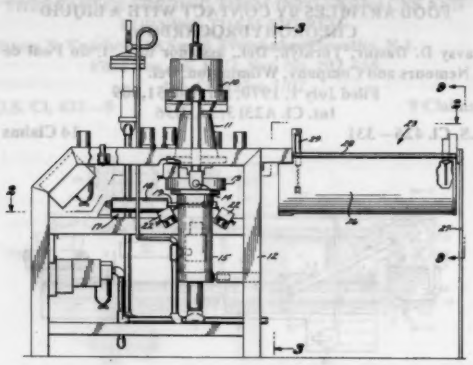
TUB FORMING MACHINE

Richard William Schuff, 810 W. Glenn Dr., Phoenix, Ariz.

Division of Ser. No. 23,584, March 30, 1970, abandoned. This application Aug. 12, 1971, Ser. No. 171,370
Int. Cl. B29c 3/06; B29d 27/04
U.S. Cl. 425—165 5 Claims

A technique, including a method and apparatus, for form-

ing containers from expanded plastic material wherein a male mold member withdraws the formed container from the



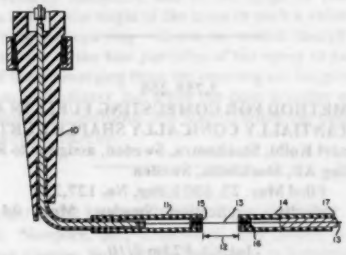
female mold member and carries the container to a position where it can be removed.

3,758,251

ELECTROSTATIC PINNING OF POLYMERIC FILM

Emile Gillyns, Sandweiler, and Norbert Thill, Itzig, both of Luxembourg, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 2, 1971, Ser. No. 204,072
Int. Cl. B29h *5/24*
U.S. Cl. 425—174.8 E **3 Claims**



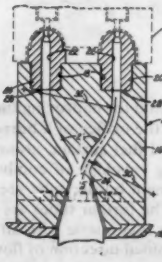
An apparatus for electrostatic edge pinning of thermoplastic film to a quench surface comprising a pinning wire positioned substantially parallel to the quenching surface and over each edge of the polymeric film.

3,758,252

NOZZLE HEAD ASSEMBLY FOR INJECTION MOLD

Arthur Kohler, Willowick Towers, Apartment 511, 31900 N. Marginal Rd., Willowick, Ohio

Filed Nov. 8, 1971, Ser. No. 196,536
Int. Cl. B29f *1/02, 1/03*
U.S. Cl. 425—242 **4 Claims**



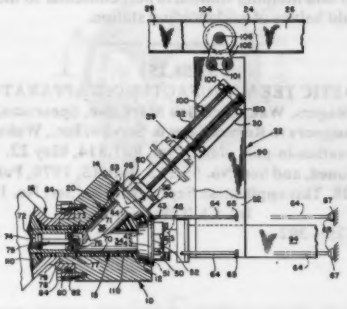
A nozzle head assembly for plastic injection molding is provided which has a body with at least two nozzles secured thereto at one end. The other end of the head is provided with plastic receiving opening. Individual passages connect each plastic receiving opening with each nozzle. The nozzles are axially offset with respect to a plastic receiving opening and the passages are formed to a curved configuration to minimize turbulence.

3,758,253

CLAY PIPE FITTING MOLDING APPARATUS

Frank S. Pearne, San Gabriel, Calif., assignor to Aircraft Mechanics, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 27,045, April 9, 1970, abandoned. This application Dec. 13, 1971, Ser. No. 207,315
Int. Cl. B28b *7/14, 7/18*
U.S. Cl. 425—249 **17 Claims**



This invention provides apparatus for molding clay pipe fittings that connect intersecting conduits. The apparatus comprises a female mold that only partially defines the exterior of a plurality of angularly intersecting conduit branches, both having bell ends formed in contiguous terminal sockets of the mold that are encompassed by a single, large, mold opening. A corresponding plurality of retractable assemblies are respectively mounted for retractable movement axially through the sockets and into the mold to dispose core bodies in intersecting relationship therein in spaced relationship with the mold walls and closing the large mold opening for more completely defining the fitting. Each retractable assembly includes a plug for mold-closing coaction with the corresponding mold socket when the plug member is so positioned in the mold. Clay forced into the closed mold about the core members forms all but a spigot end portion of one conduit branch of the fitting to be molded. Continued feeding of clay into the mold completes the molding of the fitting by extrusion of that spigot end portion of one conduit branch while moving the fitting partially out of the mold. All but one of the plug members is withdrawn from the molded fitting before, during, or after completing the fitting by extrusion and moving it entirely out of the mold. Thereafter, the molded fitting is stripped from that one plug member.

3,758,254

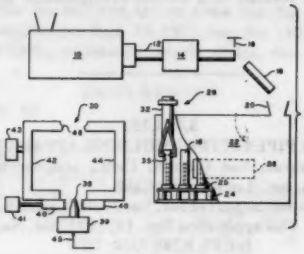
GRASPING PARISON PREFORM AT RIGHT ANGLE TO MOLD PARTING LINE

Jimmies L. Dean, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 26, 1972, Ser. No. 220,970
Int. Cl. B29d *23/03*
U.S. Cl. 425—387B **7 Claims**

An open end parison preform is heated to molding temperature preparatory to transfer to a molding station. The thus

heated parison is grapsed by a means which pinches one end together along a line which, on transfer of said thus grasped



parison to said molding station, is perpendicular to the parting line of mold halves of said molding station.

3,758,255

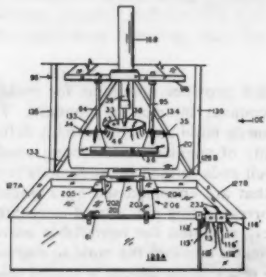
PLASTIC TEE MANUFACTURING APPARATUS

Frank J. Rogers, Waka, and Joe MacClose, Spearman, both of Tex., assignors to Rogers Sales & Service, Inc., Waka, Tex.

Continuation-in-part of Ser. Nos. 831,814, May 22, 1969, abandoned, and Ser. No. 55,113, July 15, 1970, Pat. No. 3,654,008. This application Sept. 13, 1971, Ser. No. 180,023

Int. Cl. B29c *17/02*

U.S. Cl. 425—392 **2 Claims**



A fixed main frame and tank assembly cooperate with a movable frame assembly having a movable piston assembly, a pipe support seat, a sput drawing assembly and a guide frame thereon, for forming a sput on a plastic conduit while supporting the conduit.

3,758,256

METHOD FOR PROCESSING A VITAL, FLAVOURED EGG

Kinji Terada, 40, Miyamaru-machi, Wahamatu-ku, Kitakyushu-shi, Fukuoka-ken, Japan

Filed July 21, 1971, Ser. No. 164,668

Claims priority, application Japan, July 25, 1970, 45/064775

Int. Cl. A23b *5/00*; A23l *1/32*

U.S. Cl. 426—281 **4 Claims**

The present invention relates to a method for processing a vital, flavoured egg with uniform distribution of the salt content therein, characterized by immersing an egg in a near-saturation salt water, having therein a non-ion surface active agent, applying pressure for a short time to make the salt penetrate the structure of the egg, lifting the egg out of the water and allowing it to stand still for at least 24 hours.

3,758,257

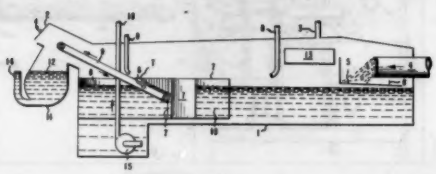
REDUCTION OF MICROORGANISM POPULATIONS OF FOOD ARTICLES BY CONTACT WITH A LIQUID CHLOROHYDROCARBON

Kavsy D. Dastur, Yorklyn, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 1, 1970, Ser. No. 51,609

Int. Cl. A23l *3/34*, *3/36*

U.S. Cl. 426—331 **14 Claims**



A continuous process for reducing microorganism populations of articles, especially food, comprising effectively contacting the surfaces of the articles with a liquid, saturated fluorinated chlorohydrocarbon having a normal boiling point of 50°C. to −50°C., collecting liquid chlorohydrocarbon which has contacted the articles, reducing the microorganism population of the collected liquid, and recycling the liquid of reduced microorganism population to the article contacting step.

3,758,258

A METHOD FOR COMBUSTING FUELS IN A SUBSTANTIALLY CONICALLY SHAPED CURTAIN

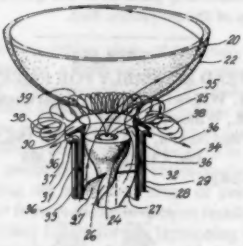
Martti Ilmari Kolhi, Stenhamra, Sweden, assignor to R. Collin Consulting AB, Stockholm, Sweden

Filed Mar. 23, 1971, Ser. No. 127,228

Claims priority, application Sweden, Mar. 24, 1970, 4010/70

Int. Cl. F23m *3/10*

U.S. Cl. 431—9 **10 Claims**



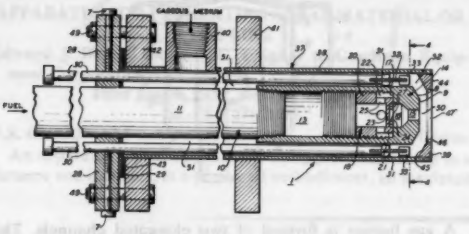
A device and method for improving the combustion of fuels which emerge from the orifice of a burner nozzle in the form of a conically shaped fuel curtain, around which and coaxial with is a connecting envelope of combustion air. Extending coaxially with the main burner tube are further tubes which form air passages. The further tubes are provided at the ends thereof adjacent the fuel nozzle with air nozzle means which give the air a determined direction of flow relative to the radial plane, thereby creating a subpressure externally of the fuel and air cones, whereupon the cones are drawn rearwardly and outwardly with respect to the burner nozzle tip.

3,758,259

METHODS FOR PREPARING FUELS AND ALSO FOR THEREAFTER FEEDING THEM INTO FURNACES AND BURNING THEM THEREIN

James T. Voorheis, 18 Smull Ave., Lake Hiawatha, N.J.

Filed Nov. 26, 1971, Ser. No. 202,415
Int. Cl. F23m *3/02*
U.S. Cl. 431—9 **9 Claims**



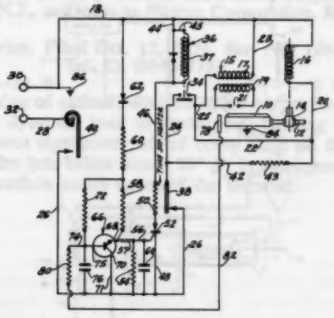
Methods for preparing fuels comprising continuously discharging from the discharge orifice of an atomizing nozzle at a linear velocity of about 4–200 ft/sec. swirling liquid fuel particles in the form of a spray cone which under surrounding atmospheric conditions is about 50° – 100° and the average diameter of the particles is 25 – 150 microns, and simultaneously through means surrounding the nozzle, spaced therefrom, extending downstream thereof and having a discharge opening spaced from the orifice, continuously feeding a stream of a swirling gaseous medium against the cone at a linear velocity sufficient, and in the range of 100 – 2000 ft/sec., to reduce the angle of the cone to such a value that the wall defining the opening will not be wetted thereby and to reduce the size of the fuel particles of the spray to such value that all of them emerging from the opening are no greater than 10 microns in diameter, but when the cone is under surrounding atmospheric conditions, the wall defining the opening will become wetted thereby.

3,758,260

BURNER FLAME DETECTION CIRCUIT

Harry E. Newport, Jr., Crestwood, and James A. Wright, Webster Groves, both of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed June 19, 1972, Ser. No. 263,986
Int. Cl. F23n *5/00*
U.S. Cl. 431—78 **8 Claims**



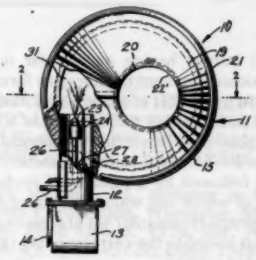
A control system for gas burners operating on a.c. power in which a first circuit including a normally open relay and the heater for a thermal time switch is completed through a normally conducting SCR and a space thermostat and a second circuit including an igniter, a normally closed solenoid fuel valve, and the thermal time switch is completed through the relay contacts and the thermostat. A normally conducting transistor is operative to shunt the gating of the SCR and effect its cutoff, but a capacitor charged through a diode and a high resistance when the thermostat closes cuts off transistor conduction, whereby the SCR conducts. When combustion occurs, the capacitor discharges through burner flame, whereby the transistor again conducts and SCR conduction is cut off. A holding circuit completed through the thermal time switch maintains the solenoid fuel valve open when burner flame appears, but operation of the igniter is cut off.

3,758,261

ATOMIZING BURNER

Bruno J. Galliano, Jr., 1810 S.E. Exeter Dr., Portland, Oreg.

Filed Mar. 30, 1971, Ser. No. 129,368
Int. Cl. F23c *5/18*
U.S. Cl. 431—116 **4 Claims**



A burner device employing modern space technology, lightweight felt-type refractories and metal alloys, the structure allowing the complete burning of a fuel mixture so that the products of combustion upon leaving the fire-box are clear, smokeless, and entirely consumed.

3,758,262

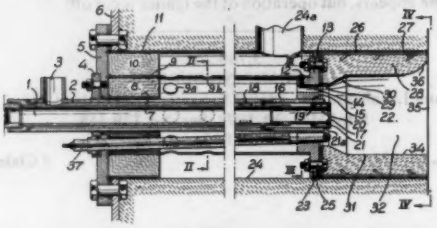
PORTABLE GAS LIGHTER WITH MAGNETICALLY OPERATED LID

Anthony Roberts Harris, Hanworth, England, assignor to Dunhill Lighters Limited, London, England

Filed July 14, 1972, Ser. No. 271,671
Int. Cl. F23g *3/01*
U.S. Cl. 431—130 **5 Claims**

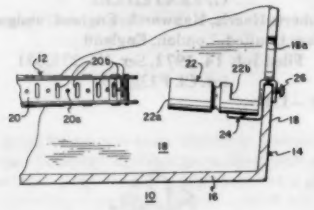
The lid of a smoker's lighter is retained normally closed by means of a magnet. The lid is spring biassed towards an open position and the magnet acts directly against the lid which is of a ferromagnetic material. A slide switch is provided to move the magnet away from the lid so as to cause the lid to open. The slide switch also makes an electrical contact which actuates an electric ignition system.

3,758,263
FLUID-FUEL BURNERS
Roland Roger Kissel, Le Vesinet, France, assignor to Societe Anonyme Heurtey, Paris, France
Filed Dec. 2, 1971, Ser. No. 203,955
Claims priority, application France, Dec. 16, 1970, 7045328
Int. Cl. F23r 1/00
U.S. Cl. 431—158 3 Claims



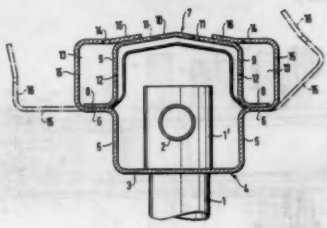
A fluid-fuel burner having an annular injection system wherein the oxidant is caused to undergo a forced rotation and the fuel is fed to the center of the injected oxidant. The injection system is positioned at the entrance of a tunnel which is initially divergent and thereafter cylindrical over a length between 0.5 and 1 times the tunnel diameter. The cylindrical portion being followed by a passage of evolutive section at least one-half of which has walls converging up to an outlet formed by a pseudo-rectangular slit at least one of the smaller sides of which is joined to the corresponding tunnel surface by a convex rounded portion.

3,758,264
GAS FIRED COOKER IGNITION SYSTEM
Joseph J. Fijalkowski, Hickory Hills, Ill., assignor to Harper-Wyman Company, Hinsdale, Ill.
Filed Feb. 14, 1972, Ser. No. 225,727
Int. Cl. F23q 21/00
U.S. Cl. 431—191 10 Claims



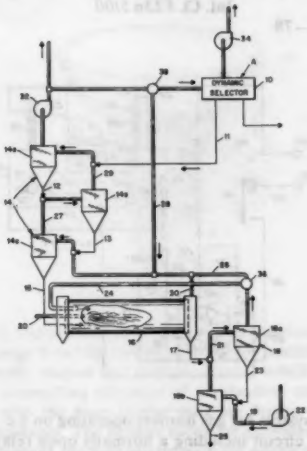
A gas fired cooker ignition system including, in combination, a gas burner mounted in a housing and adapted to be lighted from a flame source generated externally of the housing. The housing includes an upstanding wall having an ignition port therein and the burner includes at least one gas outlet directing gas flow in the general direction of said ignition port. A hollow flash tube is mounted in said housing and includes an inner, open end spaced apart and generally facing said gas outlet of said burner. The flash tube is mounted to slope upwardly towards said inner end and includes an outer end provided with an ignition opening adjacent said ignition port of said housing wall. The flash tube is detachably secured to the housing wall, the ignition opening of the tube spaced closely adjacent the ignition port so that a flame source introduced into the housing through said port will flash through the tube and ignite the gas from the burner.

3,758,265
GAS BURNER OF SHEET METAL
Georg Hein, Huckeswagen, Germany, assignor to Joh. Vaillant KG, Remscheid, Germany
Filed May 15, 1972, Ser. No. 252,976
Int. Cl. F23d 13/36
U.S. Cl. 431—349 4 Claims



A gas burner is formed of two elongated channels. The lower channel has a bottom, sides with outwardly extending steps forming ledges therealong, and distal flanges along the top of said sides. The upper channel is inverted. It has a top, two downwardly extending side walls and outwardly extending foot flanges along the bottoms of the side walls. The foot flanges rest on and are welded to the ledges. The distal flanges overlie and are welded to the top of the upper channel. This assembly defines a central main chamber into which gas is introduced, and two side expansion chambers. There are holes through the top from the main chamber to release gas for the main burner flames. There are throttle openings through the side walls of the upper channel to permit gas to flow from the main chamber to the expansion chambers. There are openings through the distal flanges to permit gas to flow from the expansion chambers to form holding flames.

3,758,266
CALCINING PROCESS AND INSTALLATION
Roger Retali, 14 Parc Bearn Rue Dailly, 92 Saint Cloud, and Philippe Pithois, 660 avenue de la Republique, 59 Lille, both of France
Filed June 23, 1972, Ser. No. 265,756
Claims priority, application France, June 25, 1971, 7123205
Int. Cl. F27b 7/02
U.S. Cl. 432—14 7 Claims



A phosphate or like mineral material is calcined in a rotary kiln after having been dried and preheated to a temperature

lower than the normal reaction temperature of the material. The preheated material is introduced into the hottest zone of the kiln and passed therethrough in the same direction as hot calcining gases. The calcined material is cooled with a current of fresh air, a portion of the cooling air is mixed with the gases removed from the kiln, and the gas mixture is used to preheat the material.

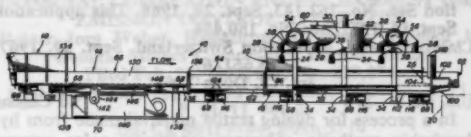
3,758,267

APPARATUS FOR PREHEATING SCRAP MATERIAL OR THE LIKE

Edward J. Berk, Chicago, Ill., assignor to Goodman Equipment Corporation, Chicago, Ill.

Filed Jan. 6, 1972, Ser. No. 215,846
Int. Cl. F27b *3/00*
U.S. Cl. 432—134 **11 Claims**

An apparatus is provided for delivering preheated scrap to a furnace and includes, in a preferred embodiment, an insulated shaker conveyor trough and means for heating the scrap material within the trough while containing gases produced incident to the heating of the scrap to hinder such gases from escaping to the atmosphere surrounding the trough.



CHEMICAL

3,758,268

DYEING KERATINOUS FIBERS AND SETTING HAIR WITH INDAMINES, SALTS THEREOF AND COSMETIC RESIN AND COMPOSITIONS THEREFOR

Gregoire Kalopissis, Paris, Andree Bugaut, Boulogne-sur-Seine, and Francoise Estradier, Paris, France, assignors to Societé Anonyme dite: L'Oreal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 52,739, July 6, 1970, now Patent No. 3,677,690. This application July 12, 1971, Ser. No. 161,887
Claims priority, application Luxembourg, July 17, 1969, 59,119; July 17, 1970, 61,354; Jan. 15, 1971, 62,426, 62,429
The portion of the term of the patent subsequent to July 18, 1989, has been disclaimed
Int. Cl. D06p *3/04*
U.S. Cl. 8—11 **21 Claims**

The invention pertains to indamines and salts thereof which are usefully employed in a dye composition for coloring keratinous fibers, especially human hair and in hair setting lotions which also includes a film-forming cosmetic resin.

3,758,269

CATION DYES AND LONG CHAIN ALKYL QUATERNARY AMMONIUM SALT APPLIED TO ANIONICALLY MODIFIED NYLON IN A JUTE-BACKED CARPET

Friedrich F. Bartsch, Westfield, and Robert Feigin, West Orange, N.J., assignors to Sybron Corporation, Rochester, N.Y.

No Drawing. Filed Oct. 12, 1971, Ser. No. 188,559
Int. Cl. D06p *3/82*
U.S. Cl. 8—21 B **8 Claims**

The staining of cationic dyeable nylon carpet face fiber by cationic dyestuffs used in dyeing jute-backing is prevented without significant loss of color yield on the jute by dyeing the jute below about 90° F. in the presence of a cationic surface active agent of the formula:

where X^- is any water-soluble anion, R_1 is an aliphatic hydrocarbon group containing at least 8 carbon atoms, R_4 is —H, $-CH_3$ or other hydrocarbon alkyl group, R_2 and R_3 are either hydrogen aliphatic hydrocarbon groups, cycloaliphatic groups or 2-hydroxy-propyl groups, and R_1, R_2, R_3 and R_4 contain a total of 16 to 45 carbon atoms.

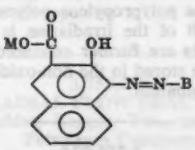
3,758,270

COLORING NICKEL MODIFIED OLEFINIC POLYMERS WITH AN AROMATIC ORTHOHYDROXY CARBOXYLIC ACID AND AZO PIGMENT, PRINT PASTE COMPOSITION AND FIBERS COLORED THEREBY

Harold C. Will, Reading, Pa., assignor to Crompton & Knowles Corporation, Worcester, Mass.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,173
Int. Cl. C09b *45/22;* **D06p** *1/18*
U.S. Cl. 8—42 D **15 Claims**

Compositions coloring for nickel stabilized olefinic polymers comprising an aromatic orthohydroxy carboxylic acid and a compound having the structure—



wherein M is —H, —K, —Na, —½ Ca, —½Mg, —½ Mn or —½ Ba and B is an azo coupling component free of groups such as $-SO_3H$, —COOH, —OH, and $-OCH_3$, or combinations of substituent groups which impart water solubility of the order provided by such groups. Other aspects of the disclosure deal with a coloring process using the composition, to the colored fibers produced by the process and to a print paste which employs the composition.

3,758,271

COMPOSITIONS AND PROCESSES

Robert Lauren Tichenor, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 14, 1971, Ser. No. 180,448
Int. Cl. D06p *5/06*
U.S. Cl. 8—172 **6 Claims**

An anionically-modified acrylic fiber coated with a small amount of a selected poly(secondary amine) or poly(tertiary amine) such as poly(diethylaminoethyl methacrylate), or protonated salt thereof, such as protonated poly(diethylaminoethyl methacrylate) acetate. The polyamine or protonated salt thereof acts as a dye retarder along the surface of the acrylic fiber to promote efficient dye use and uniformity of dye levels.

3,758,272
PROCESS FOR DYEING HYDROPHOBIC TEXTILE MATERIAL

Keshav V. Datye, Goregaon-Bombay, India, and Branimir Milicevic, Riehen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 762,143, Sept. 24, 1968. This application Sept. 14, 1971, Ser. No. 180,486
Claims priority, application Switzerland, Sept. 29, 1967, 13,651/67
Int. Cl. D06p *1/68*
U.S. Cl. 8—172 20 Claims

In a process for dyeing textile material made from hydrophobic synthetic polymers containing polar groups, wherein dyeing is carried out in a homogeneous solution of a dyestuff or mixture of dyestuffs in an organic solvent or solvent mixture, an improvement is disclosed which comprises diluting the dyebath, either continuously or in portions, during said dyeing process with a second solvent or with water which may contain a maximum of 30% of organic or inorganic impurities, without precipitating the dyestuff, said second solvent or water being miscible with the first organic solvent, said process being characterized by improved dyeings.

3,758,273
PROCESSES FOR STERILIZING POLYPROPYLENE OBJECTS

Richard Johnston and Raymond Clarke, Reading, Berkshire, England, assignors to The Gillette Company, Boston, Mass.

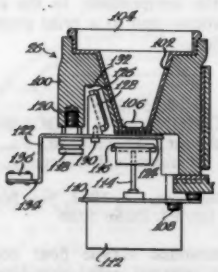
No Drawing. Filed Apr. 1, 1971, Ser. No. 130,516
Claims priority, application Great Britain, Apr. 3, 1970, 15,919/70
Int. Cl. A61l *1/00*
U.S. Cl. 21—54 R 5 Claims

If the sterilization of polypropylene objects by irradiation with γ-rays is carried out in a non-oxidizing (inert) atmosphere the brittleness and breakdown in the molecular weight of the polypropylene polymer which usually occurs as a result of the irradiation is substantially reduced. The results are further enhanced if the polypropylene objects are stored in the non-oxidizing atmosphere subsequent to irradiation.

3,758,274
REAGENT RESERVOIR AND MAGNETIC STIRRING SYSTEM

David Alan Ritchie and James S. Kuciejcik, St. Louis, Mo., assignors to Sherwood Medical Industries Inc.

Filed July 30, 1971, Ser. No. 167,378
Int. Cl. B01f *7/16, 13/08*
U.S. Cl. 23—259 8 Claims

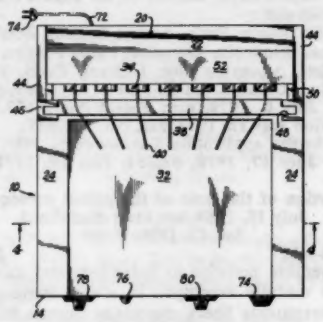


A testing apparatus for automatically determining prothrombin times and other similar factor assays. A turntable conveyor moves successive blood plasma samples in containers to a test station where each sample is tested, pertinent information sensed and fed to a printer for readout. Preliminary to the testing station is a first reagent dispenser where a reagent is dispensed to each sample and a second reagent dispenser is located at the testing station for adding a second reagent. Intermediate the two reagent dispensers is a sample incubation device which intimately contacts each container to apply heat thereto to incubate the sample contained therein. Each reagent dispenser is provided with a reagent reservoir and associated magnetic stirring system. A unique system for decoupling the magnetic stirring system from a magnetic stirrer and moving the magnetic stirrer out of the path of a pipette forming part of each reagent dispenser is provided. At the testing station, a unique photosensitive detection device is provided for sensing the formation of clots after the second reagent is added.

3,758,275
APPARATUS FOR PROVIDING TEST SPECIMENS IN THE FORM OF SPOTS

Babington A. Quame, 331 E. 29th St., New York, N.Y. 10016

Filed July 2, 1971, Ser. No. 159,346
Int. Cl. G01n *1/14*
U.S. Cl. 23—259 10 Claims



An apparatus for providing test specimens in the form of spots. The apparatus includes a supporting structure for supporting a sheet material which is to receive the spots. A rack is provided to hold beakers or other containers in which the specimen material is situated dissolved in suitable liquid solvent. A carrier structure carries a plurality of capillary tubes which have receiving ends situated in the beakers in communication with the solvent therein when the rack is placed at a predetermined position with respect to the carrier structure for the capillary tubes. These tubes respectively have discharge ends which are spaced suitably from each other and located over the supporting structure for the sheet material so that through capillary action the specimens dissolved in the solvent will be deposited on the sheet material to form thereon specimens in the form of dry spots resulting from evaporation of the solvent.

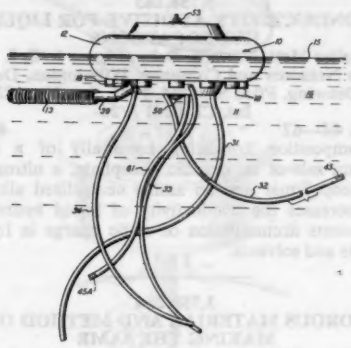
3,758,276
WATER-PROPELLED POOL PURIFYING FLOAT

Willilam D. Bond, 147 McKinley Place, Arcadia, Calif. 91016, and Ray Wesley Patterson, 22099 Waite, Elsinore, Calif. 92330

Filed Apr. 5, 1971, Ser. No. 131,250
Int. Cl. B01d *11/02;* B01f *1/00*
U.S. Cl. 23—267 A 6 Claims

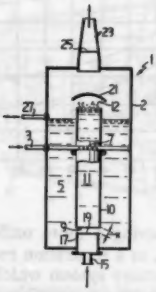
A foam plastic flotation ring containing a plurality of soluble chlorine capsules supports a pool water manifold into which return water from the pool circulation system

flows from a long flexible hose linked to the pool return system. A plurality of flexible tube agitators extend from the manifold. The agitators whip randomly beneath the floating manifold to agitate sediment from the pool walls



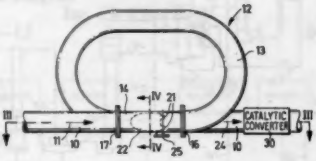
and bottom for removal through the pool drain. A jet extends from the manifold and reaction to the discharge of pool return water through the jet moves the chlorinator and agitators about the pool.

3,758,277
AMMONIUM NITRATE NEUTRALIZER
Toby M. Cook, Gerald L. Tucker, and Marion L. Brown, Jr., Yazoo City, Miss., assignors to Mississippi Chemical Corporation, Yazoo, Miss.
Filed June 11, 1971, Ser. No. 152,063
Int. Cl. B01j *1/00*; C01c *1/18*
U.S. Cl. 23—285 **4 Claims**



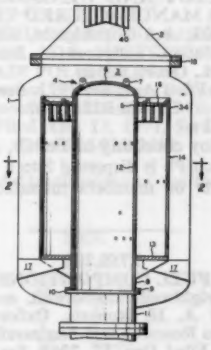
Highly dilute nitric acid is neutralized with ammonia by feeding the acid into an aqueous first reaction zone of a thermal siphon-pressure pump neutralizer, feeding ammonia into proximity to an aqueous second reaction zone, which is contiguous with said first reaction zone, and in circulating communication therewith in the neutralizer, circulating the nitric acid into the second reaction zone such that when the acid enters the second reaction zone its concentration is less than 15% and preferably less than 0.5 to 1%. A predominant proportion of the nitric acid is neutralized with the ammonia in the second reaction zone so as to form an ammonium nitrate containing solution. This solution is removed from the second reaction zone, recirculated to the first reaction zone, and is recovered as an ammonium nitrate product. Circulation for the process is facilitated by a thermal siphon and pressure effect caused by the exothermal heat of neutralization of the nitric acid with the ammonia and by the density differential between the product solution and the reacted solution.

3,758,278
INTERNAL COMBUSTION ENGINE EXHAUST GAS EMISSION CONTROL APPARATUS
Rainer Jorg Weber, Hessenring, Germany, assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 22, 1972, Ser. No. 228,074
Claims priority, application Germany, Mar. 12, 1971, P 21 11 906.2
Int. Cl. B01j *9/04*; F01n *3/14*
U.S. Cl. 23—288 F **4 Claims**



A valve unit controls the flow of exhaust gases either directly to a catalytic converter or indirectly through a cooling loop to a catalytic converter and includes a pair of parallel tangentially disposed conduits. The inlet of one conduit receives exhaust gases from the engine, the outlet of the other conduit discharges exhaust gases to the converter, and a cooling loop connects the outlet of the one conduit to the inlet of the other conduit. An opening in the partition between the conduits joins the conduits intermediate their inlets and outlets. A valve member controls flow to alternatively direct exhaust flow either from the inlet of the one conduit to its outlet and through the cooling loop or from the inlet of the one conduit through the opening to the outlet of the other conduit.

3,758,279
RADIAL FLOW REACTOR
John S. Whitesides, Borger, Tex., assignor to Phillips Petroleum Company
Filed Apr. 26, 1971, Ser. No. 137,439
Int. Cl. B01j *9/04*
U.S. Cl. 23—288 R **1 Claim**



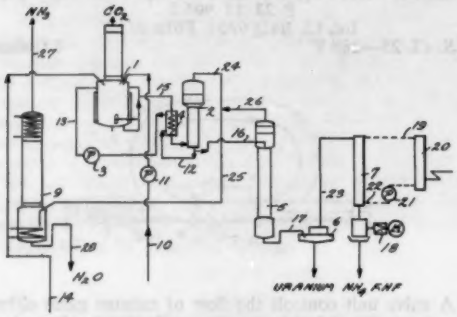
A radial flow reactor having a removably positionable catalyst basket positionable peripherally to an upwardly-extending conduit closed at its upper end and having an apertured wall for exit of reactants flowing through the catalyst bed.

3,758,280

FILTRATE AND WASTE GAS PROCESSING

Hans Pirk, Dornigheim, and Henricus Muller and Karl Hackstein, Hanau am Main, Germany, assignors to Nukem Nuklear-Chemie und -Metallurgie, GmbH, Hanau, Germany

Filed June 23, 1969, Ser. No. 835,509
Claims priority, application Germany, Apr. 23, 1969, P 19 20 479.6
Int. Cl. C01g 43/00
U.S. Cl. 423—15 5 Claims



As shown in the single figure of the drawing NH_3, CO_2, ammonium hydrogen fluoride and uranium are recovered from NH_4^+, $CO_3^=$ and fluoride containing waste water as the filtrate from the precipitation of tetraammonium uranyl tricarbonate and NH_3 and CO_2 containing waste gases from the decomposition of tetraammonium uranyl tricarbonate by employing a circulatory process having a first phase in which the filtrate and waste gases are reacted with a strongly acid solution of ammonium fluoride and ammonium hydrogen fluoride to liberate carbon dioxide and bind ammonia and a second phase wherein the resulting weakly acid carbonate free solution is evaporated to set free ammonia and regenerate the strongly acid solution and a part of the stream of strongly acid solution is withdrawn from the circuit to maintain the fluorine content of the circuit constant and the withdrawn stream is concentrated and the ammonium hydrogen fluoride separated from the uranium material by volatilizing the ammonium hydrogen fluoride.

3,758,281

SINTERED ALLOY AND WEAR-RESISTING SLIDING PARTS MANUFACTURED THEREFROM

Kenya Motoyoshi, Aza Miyahigashi, and Takao Kawakita, Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 30, 1971, Ser. No. 139,130
Int. Cl. B22f 7/00
U.S. Cl. 29—182 10 Claims

A sintered alloy consisting of Fe, Cr, and Pb having a structure in which Pb is dispersed into a Fe-Cr-C matrix, and sliding parts or members manufactured from the sintered alloy.

3,758,282

FUEL COMPOSITIONS

Keith Owen, Brightwell-cum-Sotwell, near Wallingford, and Geoffrey A. H. Roberts, Oxford, England, assignors to Esso Research and Engineering Company

No Drawing. Filed Dec. 17, 1969, Ser. No. 886,006
Claims priority, application Great Britain, Dec. 24, 1968, 61,250/68; Aug. 15, 1969, 40,977/69
Int. Cl. C10l 1/20
U.S. Cl. 44—69 22 Claims

Fuel compositions for spark ignition engines which comprise organo-metal anti-knock additives comprise, in addition, an ester of a selected type to mitigate the formation of deposits in the combustion chamber of the engine. Specific examples of suitable esters are benzyl salicylate, aryl phthalates, phenylacetates, benzyl halogenated aliphatic carboxylates and benzyl nitro- or halo-benzoates.

3,758,283

CONDUCTIVITY ADDITIVE FOR LIQUID HYDROCARBONS

John Walter Matt, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 24, 1971, Ser. No. 183,621
Int. Cl. C10l 1/26
U.S. Cl. 44—62 4 Claims

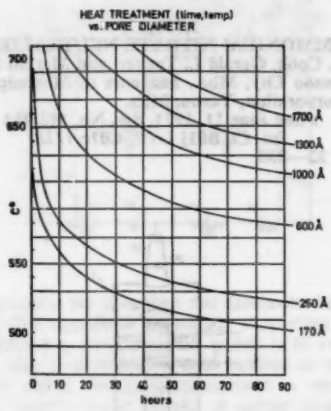
A composition consisting essentially of a trivalent chromium salt of an organic phosphate, a nitrogen containing copolymer and an amine neutralized alkyl phosphate increases the conductivity of liquid hydrocarbons and prevents accumulation of static charge in hydrocarbon fuels and solvents.

3,758,284

POROUS MATERIAL AND METHOD OF MAKING THE SAME

Wolfgang Haller, 5400 Pooks Hill Road, Apt. 912, Bethesda, Md. 20014

Original application Nov. 10, 1965, Ser. No. 507,092. Divided and this application Dec. 17, 1970, Ser. No. 99,218
Int. Cl. C03c 15/00; C03b 5/16
U.S. Cl. 65—31 14 Claims



A porous glass having a more uniform pore size distribution useful, e.g., as a separation medium, is produced from a melt of a ternary system which can be separated by heat treatment into two immiscible phases. After cooling one phase is leached out. The heat treatment is in accordance with the formula

$$r^n = kte^{-m/T}$$

where r is desired pore radius (A.), t is time in hours, T is temperature (° K.), and m, n and k are experimentally determined constants.

3,758,285

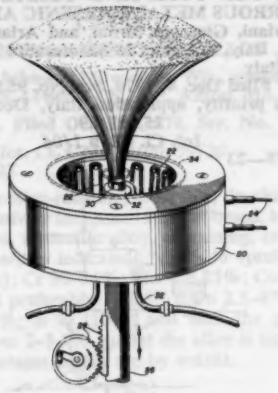
METHOD AND APPARATUS FOR MAKING GLASS FIBER SPRAYS

Keith L. Knowlton, Mill Lane Road, Brimfield, Mass. 01010

Filed Nov. 8, 1971, Ser. No. 196,699
Int. Cl. C03b 23/06
U.S. Cl. 65—64 9 Claims

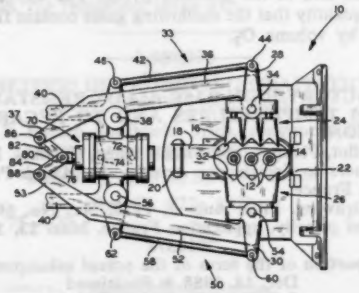
Making a glass fiber spray by securing together a bundle of fibers at one end, leaving the other end unse-

cured, and heating the bundle adjacent the secured end to a point where the outermost fibers in the bundle are caused to sag outwardly with a permanent set, and fibers located



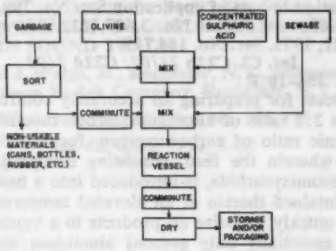
inwardly thereof sag to a decreasing degree toward the center portion of the bundle where the fibers are substantially unaffected by the heat.

3,758,286
GLASS FEEDER SHEAR MECHANISM
Clarence A. Heyne, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed Apr. 30, 1971, Ser. No. 138,887
Int. Cl. C03b *5/38*
U.S. Cl. 65—334 **15 Claims**



In preferred embodiments of the invention illustrated herein there is shown method and apparatus for shearing a plurality of gobs aligned in a row and issuing from a molten glass feeder. A pair of opposed shear carriages are provided which are movable toward and away from each other between open and shearing positions with respect to a row of a gobs. A pair of opposing gob cutting surfaces for each gob to be severed are mounted on the opposed shear carriages. A lever is provided for each shear carriage having one end pivotally connected to its carriage and a portion remote from the carriage end pivotally supported on a frame structure. Each lever is operable to pivot the carriage toward and away from a gob shearing position. Means are connected to each of the shear carriages for pivoting the shear carriages on their levers to translate the arcuate motion imparted to the carrier by the levers to substantially linear motion enabling the gob cutting surfaces to substantially simultaneously engage and sever the plurality of gobs. The motion translating means preferably includes a steering link having one end pivotally connected to the shear carriage a predetermined distance from the lever connection to the carriage, and a means for pivotally supporting the other end of the steering link a fixed distance from the pivotally supported other end of the lever. Novel blade structures, alignment and cooling features are also shown.

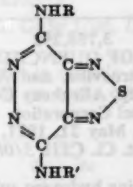
3,758,287
PROCESS OF TREATING ORGANIC WASTE
Hans P. Scheel, Seattle, Wash., assignor to Western Minerals, Inc.
Continuation-in-part of application Ser. No. 138,763, Apr. 29, 1971. This application Aug. 28, 1972, Ser. No. 283,987
Int. Cl. C08f *3/00*
U.S. Cl. 71—12 **8 Claims**



Conversion of organic waste into organic plant food is carried out by subjecting the waste to heat sufficient to sterilize, deodorize, and de-water the waste, the heat being generated by the chemical reaction of a mixture principally of magnesium oxide and sulfuric acid. Although commercial magnesium oxide may be used, a preferable source is finely ground olivine, a less highly refined and less expensive material containing a large percentage of magnesium oxide. Olivine is a mineral composed essentially of the oxides of magnesium and iron but also containing aluminum, nickel, and other trace elements. When the olivine is mixed with concentrated sulfuric acid, a paste is formed which is then mixed with the waste. The exothermic reaction which takes place produces a compost-like material which is valuable as a plant food.

3,758,288
SELECTED THIADIAZOLO[3,4-d]PYRIDAZINE COMPOUNDS FOR PROTECTING PLANTS AGAINST AIR POLLUTION
Edward Levant Jenner, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 13, 1971, Ser. No. 133,723
Int. Cl. A01n *9/12*
U.S. Cl. 71—90 **3 Claims**

Thiadiazolo[3,4-d]pyridazines of the formula



are useful in protecting plants against the damaging effects of various pollutants found in the air, as ozone.

3,758,289
PREREDUCTION PROCESS
James M. Wood, Jr., Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.
No Drawing. Filed May 1, 1970, Ser. No. 33,953
Int. Cl. C22b *21/02*; C22c *1/00*; C22d *7/06*
U.S. Cl. 75—10 18 Claims

Aluminum-silicon alloy is produced from aluminum-containing ores in a two-step process. The first step includes heating aluminum-containing ore to a temperature of from about 1500° C. to about 1800° C., the heat being supplied by a fossil fuel. The second step of the process includes transferring the product of the first step to an electric arc furnace and heating the product to a temperature of from about 2000 to about 2300° C.

3,758,290
CARBOTHERMIC PRODUCTION OF ALUMINUM
Robert M. Kibby, Florence, Ala., assignor to Reynolds Metals Company, Richmond, Va.
Continuation-in-part of application Ser. No. 799,672, Feb. 17, 1969, now Patent No. 3,607,221. This application July 21, 1971, Ser. No. 164,769
Int. Cl. C22b *21/02*; C22d *7/02*
U.S. Cl. 75—10 R 6 Claims

A process for preparing an accurately controlled feed, having a 2:1 ratio of aluminum:carbon monoxide and a 1:1 atomic ratio of carbon:oxygen, for a carbothermic process wherein the feed, consisting essentially of aluminum monoxycarbide, is introduced into a heating zone and maintained therein at an elevated temperature sufficient to quickly vaporize all products to a vaporous mixture of essentially only gaseous aluminum and carbon monoxide. The vaporous mixture is then contacted in the absence of a reactive environment with a layer of liquid aluminum at a temperature sufficiently low that the vapor pressure of the liquid aluminum is less than the partial pressure of the aluminum vapor in contact with it and sufficiently high to prevent the reaction of carbon monoxide and aluminum, and finally, the substantially pure aluminum is recovered.

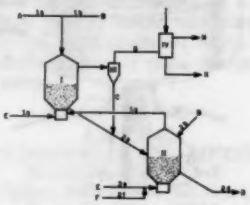
3,758,291
METHOD FOR PRODUCING METAL ALLOY FOAMS
William J. Ptashnik, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 29, 1971, Ser. No. 193,937
Int. Cl. C22c *1/08*
U.S. Cl. 75—20 F 6 Claims

A method of producing foamed metal alloy products is disclosed including the steps of heating the alloy to a temperature between its solidus temperature and its liquidus temperature, mixing into the alloy a particulate material which decomposes to release a substantial amount of gas at a temperature above the heating temperature but below the liquidus temperature, and solidifying and working the alloy to an article of desired shape. Thereafter, to effect foaming the article is reheated to a temperature above the decomposition temperature of the foaming agent but below the liquidus temperature to cause the generation of gas in situ and resulting foaming. The foamed article is then rapidly cooled to stabilize the foam.

3,758,292
METHOD OF QUENCHING SLAG
John B. Kuntz, Monroeville, and Anthony A. Spinola, Penn Hills Township, Allegheny County, Pa., assignors to United States Steel Corporation
No Drawing. Filed May 21, 1971, Ser. No. 145,966
Int. Cl. C21b *3/08*
U.S. Cl. 75—24 5 Claims

A method of reducing hydrogen sulfide emission during the quenching of hot blast furnace slag. More particularly, the addition of an alkali or alkaline earth metal or aluminum oxide or carbonate to the water used to quench molten blast furnace slag is found to reduce hydrogen sulfide emission.

3,758,293
PROCESS FOR PURIFYING PYRITE ASHES OF NON-FERROUS METALS, ARSENIC AND SULFUR
Bruno Viviani, Giuseppe Sironi, and Ariano Colombini, Novara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
Filed Dec. 4, 1970, Ser. No. 95,087
Claims priority, application Italy, Dec. 9, 1969, 25,507/69
Int. Cl. C21b *1/04*
U.S. Cl. 75—23 7 Claims



A process for purifying pyrite or pyrrhotite ashes by removal therefrom non-ferrous metals, arsenic and sulfur. The process which comprises admixing pyrite with said pyrite ashes coming from a roasting furnace at 500°–800° C., said pyrite being in quantities of from 25–200 kg. of FeS_2 per ton of ash, depending on the temperature of the ashes. Treating the pyrite ash/pyrite admixture in a fluid bed at 850°–950° C. with a mixture of chlorine and oxygen containing gases in which the chlorine is equal to 105–120% of the stoichiometric with respect to the non-ferrous metals and to the arsenic present in the ashes and in the admixed pyrite. The oxygen is in such a quantity that the outflowing gases contain from 0.5 to 5% by volume O_2.

3,758,294
REFRACTORY IRON-BASE ALLOY RESISTANT TO HIGH TEMPERATURES AND TO RECARBURIZATION
Jean Bellot, Pompey, and Michel Hugo, Custines, France, assignors to Societe des Acieries du Manoir-Pompey, Paris, France
No Drawing. Filed Aug. 3, 1970, Ser. No. 60,658
Claims priority, application France, Mar. 23, 1970, 7010371
The portion of the term of the patent subsequent to Dec. 14, 1988, is disclaimed
Int. Cl. C22c *39/20*, *39/50*
U.S. Cl. 75—122 1 Claim

An iron-base alloy having a good creep resistance at high temperature, a good corrosion resistance up to at least 1,200° C. and a high resistance to carbon restoration or recarburization by carburizing agents and containing carbon, nickel, chromium, manganese, silicon, niobium with the usual impurities and wherein the improvement consists in that said alloy contains 0.3 to 4.5% of tungsten, 1.0 to 8% of niobium and 0.02 to 0.25% of nitrogen.

3,758,295
NICKEL-CHROMIUM-IRON ALLOYS
Michael Morley, Kingsthorn, and Allan Roy Knott, Fayre Oaks, England, assignors to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed Jan. 20, 1971, Ser. No. 108,171
Claims priority, application Great Britain, Jan. 26, 1970, 3,643/70
Int. Cl. C22c *19/00*, *39/20*
U.S. Cl. 75—122 6 Claims

Nickel-chromium-iron alloys of special composition and containing carbon, molybdenum, titanium, aluminum,

boron, etc., are particularly suitable for wrought rotor discs for gas turbine engines and for other articles and parts that are subjected in use to high stress at temperatures up to about 700° C., e.g., 550° C. to 700° C.

3,758,296

CORROSION RESISTANT ALLOY

Thomas E. Johnson, Milwaukee, Wis., assignor to Chas. S. Lewis & Co., Inc., Affton, Mo.

No Drawing. Filed Oct. 29, 1970, Ser. No. 85,252

Int. Cl. C22c *19/00, 39/20*

U.S. Cl. 75—122 8 Claims

A highly corrosion-resistant, workable, durable, strong, hardenable, relatively inexpensive nickel-based, high chromium, high iron, austenitic alloy, containing, in approximately the quantities indicated: Ni 26–48 (preferably to 38%) (balance); Cr 30–34%; Mo 4–5.25%; Co 4–7.5%; Fe 3–25% (but preferably 10–25%); Cu 2.5–8%; C .05–.25%; Si to 4%; B to .10%; and with the preferable range of Si about 2–3.5% so that the alloy is age hardenable. All percentages herein are by weight.

3,758,297

SAW BLADE MADE FROM W-Cr-W-Mo CONTAINING TOOL STEEL

Jacques L. J. Demurger, 36 Place des Promenades Populle, Roanne 42, France

No Drawing. Filed June 29, 1970, Ser. No. 50,946

Int. Cl. C22c *39/14, 39/20*

U.S. Cl. 75—126 C 5 Claims

A saw blade made from alloy steel which consists essentially of about 0.75–0.90% carbon, about 3–4% chromium, about 1.3–1.6% molybdenum, about 1.5–2.5% vanadium, about 5–7% tungsten and less than 0.80% of impurities, the remainder being iron.

3,758,298

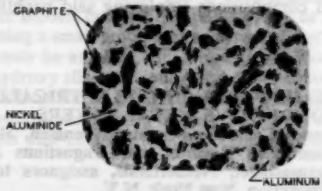
METHOD OF PRODUCING GRAPHITIC ALUMINUM CASTINGS

Robert E. Eppich, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 2, 1970, Ser. No. 51,750

Int. Cl. C22c *1/10*

U.S. Cl. 75—138 5 Claims



A method of producing graphitic aluminum castings comprising first reacting nickel coated graphite powder with aluminum at an elevated temperature in a non-oxidizing environment to form on cooling a briquet consisting essentially of graphite particles and a discrete nickel aluminide intermetallic phase in an aluminum matrix and then immersing the briquet in an aluminum melt whereby the briquet melts and the graphite particles become suspended in the molten aluminum. The aluminum melt having a predetermined quantity of graphite dispersed therein is thereafter cast to form a graphitic aluminum casting.

3,758,299

CHROMIUM-NICKEL ALLOYS AND ARTICLES AND PARTS MADE THEREFROM

Philip James Ennis and Philip James Parry, Birmingham, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Mar. 10, 1971, Ser. No. 123,068

Int. Cl. C22c *19/00*

U.S. Cl. 75—171 9 Claims

Corrosion-resistant cast articles and parts made from chromium-nickel alloys containing one or more of the elements columbium, titanium and tantalum in carefully controlled amounts to obtain improved room-temperature ductility after prolonged service at high-temperatures and, in some cases, improved strength.

3,758,300

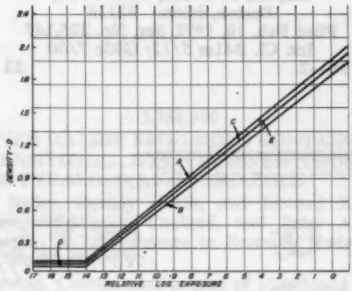
COLOR SOUND MOTION PICTURE FILM PRINTS WITH MINIMAL FOGGED GRAIN RELATED NOISE IN SOUND TRACK

Edward J. Walsh, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,777

Int. Cl. G03c *5/14, 5/30*

U.S. Cl. 96—4 6 Claims



Sound track fogged grain related noise in printed silver sound track images of developed reversal print films is reduced by incorporation of a fogged grain related noise suppressing amount of 2-benzimidazolethiol into the silver sound track redeveloper solution used for redeveloping the silver image of the sound track in a color picture and silver sound track developing process.

3,758,301

ELECTROPHOTOGRAPHIC USES OF SELENIUM CONTAINING POLYMERS

Wolfgang H. H. Gunther, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Original application July 30, 1970, Ser. No. 59,495, now Patent No. 3,671,467. Divided and this application Dec. 20, 1971, Ser. No. 210,273

Int. Cl. G03g *5/06, 13/22*

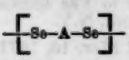
U.S. Cl. 96—1.5 63 Claims

This invention relates to organic diselenides and polyselenides among which are cyclic compounds represented by the formula:

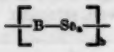
(I)

wherein R is selected from divalent hydrocarbylene radicals of 5 to 20 carbon atoms, divalent heterocyclic,

alicyclic and aromatic radicals having from 3 to 50 carbon atoms, *n* is a positive integer and X is the radical —Se—R—Se—; linear polymers having a repeating unit represented by the formula:

(II) 

wherein A is selected from divalent alkylene radicals having from 9 to 20 carbon atoms, divalent aromatic radicals from 6 to 50 carbon atoms and divalent heterocyclic radicals and polymers having a repeating unit represented by the formula:

(III) 

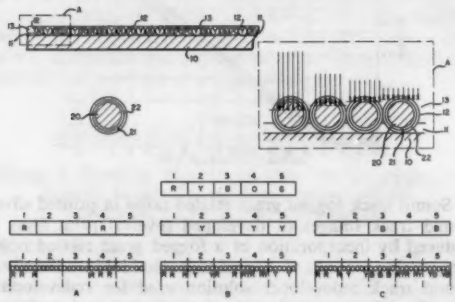
wherein B is selected from the group consisting of divalent hydrocarbylene radicals and divalent heterocyclic radicals, *a* is a positive integer of at least 3 and *b* is a positive integer greater than 1. This invention also relates to the use of these compounds in the production of electrophotographic plates.

3,758,302

SINGLE IMPRESSION MULTICOLOR PRINTING

Stephen F. Grohe, 1 Haven St., Boston, Mass. 02118

Filed Feb. 10, 1972, Ser. No. 225,147
Int. Cl. B41m *5/12*; G03c *7/00*
U.S. Cl. 96—2 **21 Claims**



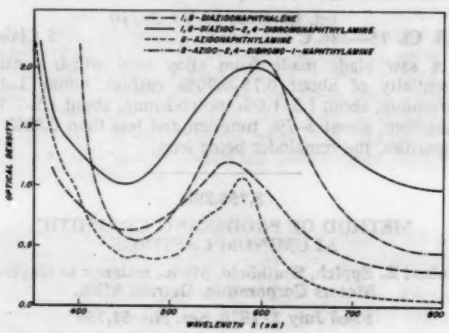
This invention relates to the art of color printing wherein multi-color reproductions are made with a conventional black and white first printing plate and a second, single, multicolor printing plate. The invention is characterized, in part, by the second plate which comprises a base layer, a layer of microbeads distributed over said base layer and, in a preferred embodiment, an over-coating of a neutral density filter. The microbeads comprises a source of a color-forming material coated first with a layer of a light sensitive material and a second layer of a photographic color filter. Three distinct types of microbeads are used, one responsive to each of the three primary colors, red, yellow and blue. The printing process comprises forming separate color separation negatives in conventional manner, exposing the single, multicolor printing plate to each of the color separation negatives using the appropriate colored light and processing said plate to remove light exposed portions of the light sensitive material thereby making available red color-former from those microbeads exposed to red light, yellow color-former from those microbeads exposed to yellow light and blue color-former from those microbeads exposed to blue light. The amount of color-former made available determines the depth of color of the final print and this is in turn governed by the quality of light passing through the neutral density filter to the microbead. The printing plate so developed is then contacted with an ink which contains a second component of the color-former capable of reacting with the first component to thereby provide the primary colors red, yellow and blue in the corresponding, exposed and developed microbead. Upon contact of the first component of the color-former on the printing plate with the second component of the color-former in the ink, a color is produced in each of the developed microbeads which color is equivalent to a color dot in a conventional printing process. Consequently, a colored illusion is obtained having all of the colors and hues ready for transfer to a transfer surface.

3,758,303

PHOTOGRAPHIC IMAGING OF MATERIAL CONTAINING HALO AZIDO NAPHTHALENES

Balwant Singh, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Original application May 26, 1971, Ser. No. 147,117, now Patent No. 3,699,130. Divided and this application Aug. 2, 1972, Ser. No. 277,453
Int. Cl. G03c *5/18*
U.S. Cl. 96—27 R **6 Claims**



Novel halo azido naphthalenes and dry photoimaging processes and compositions employing said naphthalenes are disclosed.

3,758,304

METHOD OF PRODUCING ELECTRICALLY CONDUCTIVE METAL LAYERS

Casper Johannes Gerardus Ferdinand Janssen, Hendrik Jonker, Lambertus Postma, and Angustinus Joseph Geurts, Emmasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Feb. 8, 1971, Ser. No. 113,664
Claims priority, application Netherlands, Feb. 10, 1970, 7001820
Int. Cl. G03c *5/00, 11/00, 5/24*
U.S. Cl. 96—38.4 **11 Claims**

Method of manufacturing conductive metal patterns on a preferably insulating substrate with the aid of a curable, light-sensitive adhesive layer containing a semiconductor, light-sensitive oxide such as TiO_2. Prior to exposure the layer is partly cured and then superficially chemically roughened lightly. After exposure metal nuclei are formed by the contact with a metal salt solution, metal being subsequently deposited on said nuclei.

3,758,305

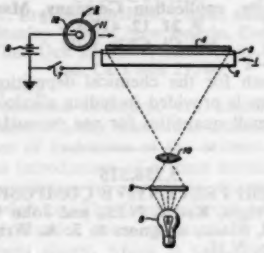
PHOTOELECTROPHORETIC IMAGING PROCESS

Lester Weinberger, Brighton, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

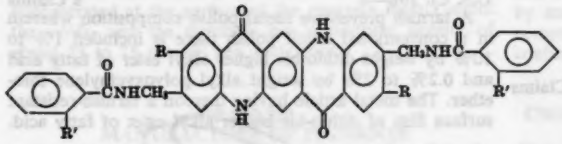
Original application Nov. 1, 1968, Ser. No. 772,596, now Patent No. 3,635,981. Divided and this application May 7, 1971, Ser. No. 141,125

Int. Cl. G03g *5/06, 13/00*

U.S. Cl. 96—1.3 12 Claims



A novel composition having the formula:



wherein R=CH_3, C_2H_5, OCH_3, OC_2H_5 or a halogen and wherein R′=COOH, COOCa/2, SO_3H, or $SO_3Ca/2$ is disclosed. Methods of preparing said composition and of using said composition in electrophoretic imaging processes are also disclosed.

3,758,306

PHOTOPOLYMERIZABLE COMPOSITIONS AND ELEMENTS CONTAINING ORGANOSILANES

Leo Roos, New Shrewsbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 25, 1971, Ser. No. 128,191

Int. Cl. G03c *1/68*

U.S. Cl. 96—83 10 Claims

Photopolymerizable elements having improved adherence to a substrate, e.g., a metal, glass, or organic polymer film of a layer of an ethenically unsaturated photopolymerizable monomer and a macromolecular organic polymer binder, preferably a polyacrylate or methacrylate containing a small amount of an organosilane. The organosilane may be an alkyl, vinyl, or aryl, trialdoxy, trichloro, or trihydroxy silane or a condensed, polymeric silane. The organosilane can be admixed with the photopolymerizable composition just prior to coating it onto the substrate. The elements can be used to make printed circuit boards.

3,758,307

DIAZOTYPE LIGHT-SENSITIVE COMPOSITIONS CONTAINING A 4 - (N-PYRROLIDINO)-3-SUBSTITUTED BENZENE DIAZONIUM SALT

Rafiqul Islam, Sidney G. Garnish, Murray Figov, and Henry Mustacchi, London, England, assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 548,840, May 10, 1966. This application Mar. 12, 1969, Ser. No. 806,742

Int. Cl. C07c *113/00*; G03c *1/52*

U.S. Cl. 96—91 R 2 Claims

Diazotype materials and sensitizing compositions therefor wherein the sensitizer is a 4-(N-pyrrolidino)-3-substituted benzene diazonium salt wherein the substituent in 3-position is mononuclear aryl, mononuclear aryloxy, aralkyl, mononuclear alkoxyaryl, alkylthio, haloalkyl, an aldehyde group, a cyano group, a carboxyl group, a carboxy ester group or a carboacyloxy group.

3,758,308

SILVER HALIDE EMULSION CONTAINING PARA-FLUORO PHENOLS

Leo E. Beavers, Philip T. S. Lau, and Ilmari F. Salminen, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 18, 1971, Ser. No. 116,624

Int. Cl. G03c *1/40*

U.S. Cl. 96—100 9 Claims

A group of para-fluoro substituted phenols having substituted carbonamido moieties in ortho and meta position thereon, the described compounds and materials incorporating the same having particular advantages in efficiently producing stable cyan dyes in excellent yield when reacted with an oxidized phenylene diamine, particularly in the capacity of a 2-Equivalent Color Photographic Coupler Compound.

3,758,309

SILVER HALIDE EMULSIONS CONTAINING SENSITIZING DYES DERIVED FROM A 1H-PYRAZOLO[3,2-c]-s-TRIAZOLE

Joseph Bailey, Bushey Heath, and Edward B. Knott, Harrow, Middlesex, England, and Peter A. Marr, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 778,333, Nov. 12, 1968. This application Jan. 15, 1971, Ser. No. 106,893

Claims priority, application Great Britain, Jan. 15, 1970, 1,957/70

Int. Cl. G03c *1/18*

U.S. Cl. 96—136 16 Claims

Dyes derived from 1H-pyrazolo[3,2-c]-s-triazoles are advantageously used in photographic silver halide elements as spectral sensitizing dyes for the silver halide or as light-absorbing dyes for filter layers.

3,758,310

METHOD OF PRESERVING HOPS

Fritz Briem, Au-Hallertau, Germany, assignor to Marietta Briem and Zita Binkert, nee Briem

No Drawing. Filed May 8, 1967, Ser. No. 642,279

Claims priority, application Germany, May 6, 1966, B 87,022, B 87,023; Mar. 30, 1967, B 91,850

The portion of the term of the patent subsequent to June 11, 1988, has been disclaimed

Int. Cl. C12c *9/02*

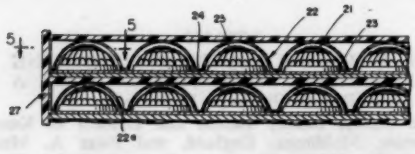
U.S. Cl. 99—50.5 9 Claims

Hops can be stored for a long period of time by drying and crushing freshly picked hops, and sealing the crushed hops in an air-tight film envelope which has an atmosphere consisting essentially of a carbon dioxide-nitrogen mixture.

3,758,311
PREPARING OF BAKED GOODS WITH COATED SALT
Karl L. Fortmann, Towaco, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 742,509, July 5, 1968, which is a continuation-in-part of application Ser. No. 651,714, July 7, 1967, both now abandoned. This application Nov. 27, 1970, Ser. No. 93,401
Int. Cl. A21d *8/00*
U.S. Cl. 99—90 R 11 Claims

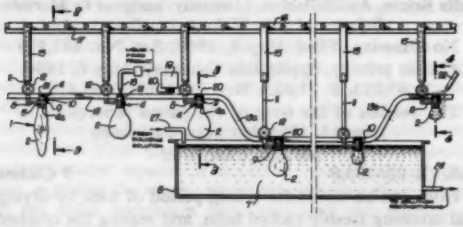
A salt-liberating composition for use in a dough preparation, permitting substantial savings in the amount of work required for mixing the dough, wherein a film-forming emulsifier, fat, hydrogenated oil or wax (largely releasable from the salt only late in the mixing cycle and during subsequent dough preparation periods, but prior to baking), is used as a coating upon the salt particles. Where a coarse salt particle is employed any fat, hydrogenated oil or wax must have a dispersing agent distributed throughout it to prevent formation of salt spots in the top crusts of the baked product.

3,758,312
PACKAGING EMBOSSED-SURFACED BUTTER AND MARGARINE
Leo Peters, 750 Plymouth Road SE., Grand Rapids, Mich. 49506
Filed Mar. 4, 1971, Ser. No. 121,010
Int. Cl. A23d *3/02*
U.S. Cl. 99—179 9 Claims



Packaging multi-cubic-dimensioned embossed surfaces of butter or margarine underneath, within, and in spaced relationship away from a generally shape-conforming, but non-surface-conforming, pre-formed cover or cap.

3,758,313
DEHYDRATION AND PACKAGING OF FOODSTUFFS BY DIALYSIS
Robert D. Scott, 1324 S. Glenn Alan, West Covina, Calif. 91890
Filed Mar. 24, 1971, Ser. No. 127,675
Int. Cl. A23c *1/00;* A23l *1/02*
U.S. Cl. 99—199 4 Claims



A food concentrate is prepared in the container by dialysis of a liquid food product portion sealed in a film bag or other container having a semi-permeable membrane wall, against a suitable aqueous salt dialyzing solution.

3,758,314
AQUEOUS BATH FOR CHEMICAL DEPOSITION OF DUCTILE COPPER COATINGS
Wolf-Dieter Haack, Berlin, Germany, assignor to Schering AG, Berlin, Germany
No Drawing. Filed Mar. 2, 1972, Ser. No. 231,362
Claims priority, application Germany, Mar. 9, 1971, P 21 12 417.4
Int. Cl. C23c *3/02*
U.S. Cl. 106—1 5 Claims

Aqueous bath for the chemical deposition of ductile copper coatings is provided including alkaloid brucine in exceedingly small quantities for use on surfaces.

3,758,315
TARNISH PREVENTIVE COMPOSITION
Thomas P. Wright, Keene, N.H., and John W. Rafferty, Marblehead, Mass., assignors to J. A. Wright & Company, Keene, N.H.
No Drawing. Continuation of abandoned application Ser. No. 602,524, Dec. 19, 1966. This application Dec. 1, 1970, Ser. No. 94,629
Int. Cl. C08h *9/00;* C09f; C09g
U.S. Cl. 106—8 8 Claims

A tarnish preventive metal polish composition wherein in a conventional metal polish there is included 1% to 10% by weight dithio-bis higher alkyl ester of fatty acid and 0.2% to 2% by weight alkyl polyoxyethylene thioether. The metal article having thereon a tarnish-resistant surface film of dithio-bis higher alkyl ester of fatty acid.

3,758,316
REFRACTORY MATERIALS AND PROCESS FOR MAKING SAME
Donald M. Sowards, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 780,182, Nov. 29, 1968. This application Mar. 30, 1971, Ser. No. 129,585
Int. Cl. C04b *35/00*
U.S. Cl. 106—55 8 Claims

Small dimensional changes during gelling, curing, and drying, and high modulus of transverse rupture strengths in refractory materials prepared from refractory powders, binder precursors, and gelling agents are obtained by careful control of the amount of acid present during the gelation step.

3,758,317
MONOLITHIC INORGANIC STRUCTURES
Earl P. Moore, Jr., Wilmington, and Donald M. Sowards, Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 20, 1971, Ser. No. 145,533
Int. Cl. C04b *35/14*
U.S. Cl. 106—65 15 Claims

Monolithic inorganic structures of positively charged colloidal particles and negatively charged colloidal silica particles are formed by combining a negatively charged colloidal silica dispersion and a positively charged colloidal dispersion.

3,758,318
PRODUCTION OF MULLITE REFRACTORY
Robert E. Farris, Pleasanton, and James C. Hicks, Walnut Creek, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
No Drawing. Filed Mar. 29, 1971, Ser. No. 129,157
Int. Cl. C04b *35/10*
U.S. Cl. 106—65 13 Claims

Method of making high purity synthetic mullite wherein finely divided aluminous (e.g., aluminum trihydrate)

and aluminosilicate (e.g., kaolin clay) raw materials are lightly calcined, at a temperature between 750 and 1150° C., and milled prior to firing to form a mullite refractory. Preferably the milled calcined materials are compacted prior to firing.

3,758,319
METHOD FOR FORMING FOAMED CONCRETE STRUCTURES

Mehmet T. Ergene, Hartford, Conn., assignor to The Stanley Works, New Britain, Conn.
Filed Oct. 22, 1970, Ser. No. 83,043
Int. Cl. C04b *21/00*
U.S. Cl. 106—88 13 Claims

Cellular concrete structures are made by admixing water and cement under conditions sufficient to produce a high degree of hydration of the cement particles, followed by the introduction of a foam formed under pressure from a mixture of water, air, foaming agent and chloride accelerator. The foam mixture and cement admixture are blended to a substantially homogeneous, foamed cement slurry, which is cast into a mold and cured to form a lightweight cellular concrete structure.

In the structure, the voids are relatively spherical in shape and have an average diameter of about 0.05 to 0.050 inch. The foaming agent and cure accelerator are concentrated at the surface of the concrete matrix about the voids, and the structure has a uniform density of about 25 to 75 pounds per cubic foot.

3,758,320
MANUFACTURE OF PIGMENTS

Robert Joseph Flores, Alsip, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio
No Drawing. Filed May 26, 1972, Ser. No. 257,117
Int. Cl. C08h *17/02*
U.S. Cl. 106—288 Q 28 Claims

Crude organic solid particles are conditioned to develop pigmentary properties. A partial milling step in which the crude pigment is subjected to particle size reduction by dry milling to an extent less than that ordinarily required to develop full tinctorial strength is followed by a breaching treatment in which the partially milled pigment is contacted with a phenol breaching agent to further condition the pigment. The resulting pigment has tinctorial strength substantially equal to that obtained by fully milling the crude particles without the breaching treatment. The phenol breaching agent may be separated from the conditioned pigment by treatment with a solubilizing base. This process is useful in the manufacture of phthalocyanines, quinacridones, etc., with substantial improvement in equipment utilization in milling.

3,758,321
CONDITIONING OF PHTHALOCYANINE COMPOUNDS

John F. Santimauro, Wyckoff, N.J., and Herman Gerson, New York, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Jan. 25, 1971, Ser. No. 109,662
Int. Cl. C08h *17/14*
U.S. Cl. 106—288 Q 11 Claims

Phthalocyanine compounds, especially halogenated phthalocyanine compounds, are conditioned to pigment form by grinding the unconditioned compounds while suspended in an aqueous medium comprising a minor amount of a water-immiscible volatile organic liquid and a major amount of water. The resulting pigments are softer in texture and of superior light-fastness compared to conventionally obtained phthalocyanines. The process for their preparation is substantially free of corrosion and pollution problems which are characteristic of many prior art conditioning processes.

3,758,322
RUTILE TiO_2 SLURRIES

George Leathwhite Roberts, Jr., Savannah, Ga., and John David Rowland, Amherst, Va., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed July 21, 1971, Ser. No. 164,939
Int. Cl. C09c *1/36*
U.S. Cl. 106—300 4 Claims

Pigment slurries of at least about 60% to 80% by weight solids content are obtained by flocculating a grit-free anhydrous pigment slurry of about 20% by weight solids, which after intermediate washing and dewatering is reslurried in the presence of a dispersant such as 2-amino-2-methyl-1-propanol. Such slurries, preferably of rutile pigment, are highly useful in the production of coated papers and water based paints.

3,758,323
DEXTRIN-EXTENDED GELATIN COMPOSITIONS

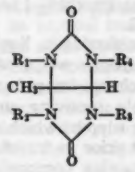
Chester D. Szymanski, Martinsville, and Gerald J. Helmstetter, Somerville, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Filed Oct. 19, 1972, Ser. No. 298,843
Int. Cl. C08b *25/02;* C08h *7/00*
U.S. Cl. 106—129 4 Claims

Extended gelatin film-forming compositions are disclosed comprising 40 to 97 percent, by weight, of gelatin and 3 to 60 percent, by weight, of certain dextrins chosen by means of a compatibility test. The extended gelatin compositions are useful in films, capsules, and protective coatings.

3,758,324
CROSS-LINKING AGENTS FOR PAPER BINDERS AND PAPER COATED THEREWITH

Richard C. Barrett, New Milford, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Dec. 23, 1971, Ser. No. 215,937
Int. Cl. C08b *25/02;* C08f *45/24;* C08h *1/00*
U.S. Cl. 106—146 15 Claims

Cross-linking agents for paper binder coating compositions, which agents comprise compounds having the general formula:



wherein R_1, R_2, R_3 and R_4 are hydrogen or hydroxyalkyl of 1 to 10 carbon atoms, with the proviso that at least one of R_1, R_2, R_3 and R_4 is hydroxyalkyl of 1 to 10 carbon atoms. Preferred compounds include mono-, di-, tri- and tetra-N-hydroxymethyl methylglycolurils.

3,758,325
NITROCELLULOSE CONTAINING ADHESIVE COMPOSITIONS

Craig E. Johnson, Indian Head, and Larry D. Henderson, Bryans Road, Md., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed June 23, 1972, Ser. No. 265,934
Int. Cl. C08b *21/12, 27/42, 27/52*
U.S. Cl. 106—180 8 Claims

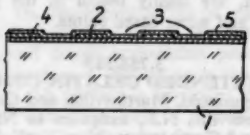
A nitrocellulose containing adhesive composition comprising two components which are mixed together and cured. Component A comprises nitrocellulose, metriol trinitrate and ethyl centralite while component B comprises triethylene glycol dinitrate, ethyl centralite and dibutyltin dilaurate. The invention also includes the method of applying the composition to the system to be used, namely the mixing of the two components together and applying to the surfaces to be adhered before the mixture completely cures.

3,758,326

MASK OR ORIGINAL FOR REPRODUCING PATTERNS ON LIGHT SENSITIVE LAYERS

Klaus Hennings and Hans Meyer, Heilbronn, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Jan. 29, 1970, Ser. No. 6,881
Claims priority, application Germany, Jan. 31, 1969, P 19 04 789.3
Int. Cl. B44c *1/50*; C03c *17/22*
U.S. Cl. 117—37 R 1 Claim



A mask or original for reproducing patterns on light sensitive layers comprises a transparent substrate and a pattern layer on the substrate containing the pattern to be reproduced. This layer has a light transmission depending on the light wavelength and consists of a III/V or a II/VI compound. A method of producing such a mask or original includes applying the layer to the substrate by vapour deposition, cathode sputtering, or pyrolytic deposition.

3,758,327

TRANSFER OF LIQUID DEVELOPED ELECTROGRAPHIC IMAGES

William C. York and Orville C. Rodenberg, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 29, 1971, Ser. No. 129,147
Int. Cl. G03g *13/16*
U.S. Cl. 117—37 LE 14 Claims

A method of transferring a liquid-developed electrostatic charge image from a wet, hydrophobic image-bearing surface of a charge-image-bearing member to a hydrophilic, swellable receiving surface carried on an electrically insulating support which comprised moistening the receiving surface prior to transfer with a hydrophilic liquid of water-containing compositions or alcohol-containing compositions, in an amount effective to increase the electrical conductivity of said receiving surface to a value less than about 106 ohm/sq., electrically biasing the moist receiving surface utilizing an applied potential greater than about 50 volts to a level sufficient to effect migration of the liquid-developed imaged to the receiving surface during contact of the receiving surface with the image-bearing surface, and contacting together the moist receiving surface and the image-bearing surface, said transfer occurring during contact.

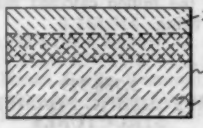
3,758,328

METHOD OF STRENGTHENING ALUMINA AND SPINEL BODIES

Henry P. Kirchner, State College, and Ralph E. Walker, Julian, Pa., assignor to Henry P. Kirchner, State College, Pa.

Continuation-in-part of abandoned application Ser. No. 669,859, Sept. 22, 1967. This application Aug. 25, 1970, Ser. No. 66,785
Int. Cl. C23c *17/00*
U.S. Cl. 117—107.2 P 11 Claims

A method of strengthening alumina and spinel bodies by forming at an elevated temperature on at least one surface of the body a coating of a low expansion material. The method comprises the steps of packing the ceramic



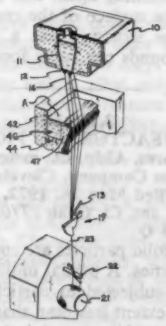
body in a mixture of Cr_2O_3 and CrF_3, $CrCl_3$, AlF_3, CaF_2 or NH_4F. The thus packed ceramic body is then refired.

3,758,329

METHOD OF COATING METAL, GLASS OR SYNTHETIC RESIN FILAMENTS WITH A HEAT-SOFTENABLE MATERIAL

Bordie B. Garick, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation

Continuation of abandoned application Ser. No. 777,001, Nov. 19, 1968. This application May 24, 1971, Ser. No. 146,429
Int. Cl. C03c *25/02*; B44d *1/09*, *1/22*, *1/42*
U.S. Cl. 117—126 GM 19 Claims



A method of achieving complete enveloping coating of metal, glass or synthetic resin fibers by a heat-softenable material, wherein a plurality of said filaments are moved downwardly past a marginal exposed edge of a reservoir pool of softened heat-softenable material and to pick up an amount of the softened heat-softenable material and thence continuously move downwardly into contact with a surface or member, causing the heat-softened material carried on one side of the individual filament to move into substantially complete enveloping relationship with the individual filament.

3,758,330

PROCESS FOR MAKING A PRINTING MASTER

Edward B. Richman, Shaker Heights, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,584
Int. Cl. B41n *3/00*; G03g *13/22*
U.S. Cl. 117—37 LE 7 Claims

A process for making a printing master wherein a photoconductive layer is selectively charged to a desired area configuration. The charged layer is then immersed in an emulsion of a conducting conversion solution in a non-converting non-conducting liquid. If the solution is oppositely charged from the area configuration it is attracted to the charged areas and converts them while the non-charged areas remain unconverted. If the solution is of the same charge as the charged areas, it will be repelled by them and they will remain unconverted and the non-charged areas, after a period of time, will be converted.

3,758,331

COVERING

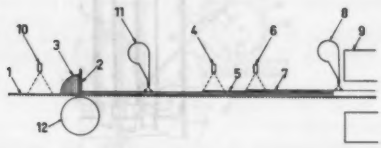
Jacques Denojean, Lyon, France, assignor to Les Etablissements Marechal, Paris, France

Filed Oct. 13, 1970, Ser. No. 80,419

Claims priority, application France, Oct. 15, 1969, 6935293

Int. Cl. B44d *1/02, 1/44*

U.S. Cl. 117—39 3 Claims



Decorative surface coverings are produced by depositing differently colored plastisols on a surface support, subjecting the plastisols to a blowing action to provide ripples or other undulations on their surface, and then heating to cause gelling of the plastisols.

3,758,332

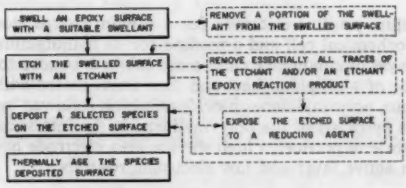
METHOD OF METAL COATING AN EPOXY SURFACE

Donald Dinella, Clark Township, Union County, and John Thomas Kenney, Lawrence Township, Mercer County, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 20, 1971, Ser. No. 173,551

Int. Cl. B44d *1/092;* C07b *13/00;* C23c *3/00*

U.S. Cl. 117—47 A 17 Claims


SWELL AN EPOXY SURFACE WITH A SUITABLE SWELLANT
REMOVE A PORTION OF THE SWELLANT FROM THE SWELLED SURFACE
ETCH THE SWELLED SURFACE WITH AN ETCHANT
REMOVE ESSENTIALLY ALL TRACES OF THE ETCHANT AND/OR AN ETCHANT EPOXY REACTION PRODUCT
DEPOSIT A SELECTED SPECIES ON THE ETCHED SURFACE
EXPOSE THE ETCHED SURFACE TO A REDUCING AGENT
THERMALLY AGE THE SPECIES DEPOSITED SURFACE

A method of improving adhesive properties of a cured epoxy surface resulting from curing an uncured bisphenol A-epichlorohydrin epoxy is disclosed. The method comprises exposing the cured epoxy surface to a suitable swellant to swell the surface. Some typical suitable swellants are methyl ethyl ketone, tetrahydrofuran, dioxane, pyridine, dimethylformamide and a mixture of methyl ethyl ketone, ethyl alcohol and methyl alcohol. The swelled surface is then exposed to a suitable acidic etching solution comprising H_2SO_4, H_3PO_4 and Cr^{+6} ions, to etch the surface.

3,758,333

METHOD FOR GALVANIZING

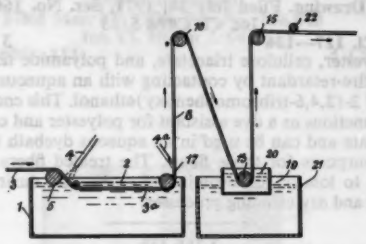
Joseph L. Herman, Pompano Beach, Fla., assignor to Emily Herman Thompson, Palos Park, Ill.

Filed July 7, 1969, Ser. No. 847,486

The portion of the term of the patent subsequent to Nov. 6, 1989, has been disclaimed

Int. Cl. C23c *1/02*

U.S. Cl. 117—62 3 Claims



A method and apparatus for galvanizing wire, in which the wire received directly from the drawing operation and without any annealing or acid cleaning is placed in contact with an electric charge bar or is otherwise heated to a relatively high temperature such as of the order of 1500 degrees F. The heated wire is then passed through a molten zinc bath, the temperature of which may be about one-half of that of the wire or of the order of 850–900 degrees F. The temperature of the molten zinc bath is maintained as low as possible so as to obtain the greatest temperature differential between the outer surface of the wire and the temperature of the molten zinc bath. After having been passed through the zinc bath to receive a primary coating of the zinc the wire is passed out of the bath in a vertical direction, again placed in contact with an electric charge bar which maintains the wire at a high temperature during its vertical travel, then changing the direction of travel and allowing the wire to cool. Thereafter it is again subjected to immersion in a molten zinc bath for a relatively short time to receive another zinc coating over the primary coating received from its first immersion. The twice-coated wire is then treated to an electrical charge and is then cooled and moved away for further disposition.

3,758,334

PROCESS FOR PROVIDING SOLID PARTICLES WITH A COATING HAVING REACTIVE SURFACE ISOCYANATE GROUPS

Henry C. Dehm, Salt Lake City, Utah, assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Original application Nov. 17, 1969, Ser. No. 877,473, now Patent No. 3,658,763. Divided and this application Sept. 8, 1971, Ser. No. 178,801

Int. Cl. B32b *1/00, 27/14*

U.S. Cl. 117—100 A 8 Claims

Solid particles are provided with a cross-linked polymeric coating having a high concentration of reactive surface isocyanate groups. An organic polyisocyanate with an NCO functionality of at least 3 is dissolved in an aprotic solvent, inert to the particles to be coated and then mixed with a limited amount of water. The particles to be coated are contacted with the reaction mixture formed above until a cross-linked polymer is absorbed over the entire surface of the particles. The particles are then recovered from the reaction mixture and stored in

an inert atmosphere until further use. A catalyst may be used. The solid particles coated may be organic, inorganic, polymeric or siliceous. The coated particles are useful as fillers in polymeric systems.

3,758,335

RENDERING HYDROPHOBIC FIBERS FIRE RETARDANT AND DYE RECEPTIVE

Sylvester Bergman and Richard Garth Pews, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 26, 1971, Ser. No. 166,248
Int. Cl. C09d *5/18*
U.S. Cl. 117—136 **3 Claims**

Polyester, cellulose triacetate, and polyamide fibers are made fire-retardant by contacting with an aqueous dispersion of 2-(2,4,6-tribromophenoxy)ethanol. This compound also functions as a dye assistant for polyester and cellulose triacetate and can be used in an aqueous dyebath to serve both purposes for those fibers. The treated fibers are resistant to loss of the brominated compound during laundering and dry cleaning processes.

3,758,336

INFORMATION CARRIER CONSTRUCTION

Rolf Reichle, Stuttgart, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Apr. 29, 1971, Ser. No. 138,670
Claims priority, application Germany, May 2, 1970, P 20 21 502.5
Int. Cl. G01d *15/08*
U.S. Cl. 117—217 **10 Claims**

An information carrier has at least one substrate support layer of dielectric material and, on an exposed face thereof at least one metallic registration layer which is adapted to have an information-denoting track of predetermined width formed therein during use. The face of the substrate support layer and correspondingly the exposed surface of the metallic registration layer—which latter is of constant thickness—have unevenesses in form of hills and valleys the height-differential between which is greater than the predetermined thickness of the registration layer and smaller than the predetermined width of the track to be formed.

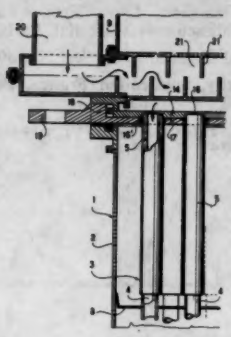
3,758,337

SODIUM-SULPHUR ACCUMULATOR WITH TEMPERATURE CONTROLLING MEANS

Jacques Fally, Orsay, Jacques Richez, Clamart, Claude Lasne, Antony, and Yvon Lazennec, Saint Michel-sur-Orge, France, assignors to Compagnie Generale d'Electricite, Paris, France

Filed Dec. 21, 1971, Ser. No. 210,345
Claims priority, application France, Dec. 21, 1970, 46,046
Int. Cl. H01m *43/00*
U.S. Cl. 136—6 FS **8 Claims**

Sulphur-sodium accumulator for producing electrical energy comprises a container having a plurality of tubes of which at least the lower portion is intended to be used as a solid electrolyte. An electronic conductive material, such as graphite felt, impregnated in the charged state, with sulphur, is arranged in the container at least around that portion of the tubes forming the electrolyte. All the



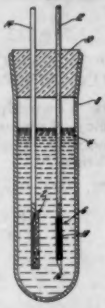
tubes are connected to a common sodium tank, while cooling means is positioned between the tubes and the tank.

3,758,338

POSITIVE ELECTRODE FOR A LITHIUM-CHARGE STORAGE ELECTROCHEMICAL CELL

Sidney M. Selis, deceased, late of Oak Park, Mich., by Betty Selis, executrix, Oak Park, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 277, 1972, Ser. No. 247,947
Int. Cl. H01m *35/02*
U.S. Cl. 136—6 F **2 Claims**



A thin, positive electrode for a lithium-charge storage electrochemical cell and a method for its manufacture. A thin layer of conductive carbonized fabric is bonded to the surface of a graphite sheet and then impregnated with an aqueous, polyvinylidene chloride emulsion followed by the in situ pyrolysis of the polyvinylidene in the interstices of the fabric to produce a high surface area electrode having a thin active layer and low electronic resistance.

3,758,339

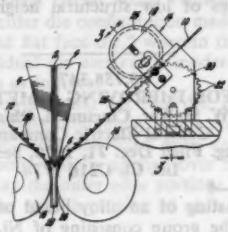
METHOD OF OPERATING FUEL CELL WITH HYDROGEN PEROXIDE OXIDANT

Jean P. Manion, Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Continuation-in-part of application Ser. No. 639,589, Mar. 27, 1967, which is a continuation-in-part of application Ser. No. 366,934, May 7, 1964, which in turn is a continuation of application Ser. No. 111,516, May 22, 1961, all now abandoned. This application Sept. 10, 1969, Ser. No. 870,346
Int. Cl. H01m *27/30*
U.S. Cl. 136—86 E **4 Claims**

A method of operating a fuel cell with a liquid oxidant, hydrogen peroxide, wherein the hydrogen peroxide is sprayed against the surface of the fuel cell oxidant electrode. Excess hydrogen peroxide is permitted to run off the oxidant electrode surface to be collected and reused.

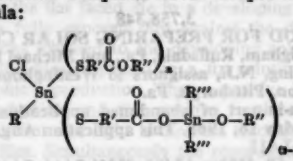
3,758,340
LEAD ACID STORAGE BATTERY PLATES AND PROCESS FOR PASTING THEM
Morris E. Adams, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 27, 1971, Ser. No. 192,929
Int. Cl. H01m 35/26
U.S. Cl. 136—67 2 Claims



A lead-acid storage battery plate and process for pasting a continuous strip of grids including continuously sandwiching a fiber-laden paste and grid strip between layers of perforated paper.

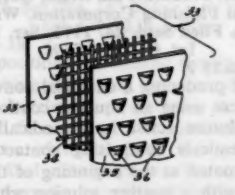
3,758,341
HALO (ORGANO) TIN THIOCARBOXYLATES
Anatole Wowk, Edison, N.J., assignor to M & T Chemicals Inc., New York, N.Y.
No Drawing. Original application June 15, 1970, Ser. No. 46,483, now Patent No. 3,655,613. Divided and this application Oct. 29, 1971, Ser. No. 193,981
Int. Cl. C07f 7/22
U.S. Cl. 260—429.7 4 Claims

This invention comprises novel compounds exhibiting the formula:



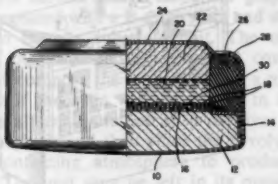
wherein R, R′, R″ and R‴ are hydrocarbons and *n* is 0 or 1, methods of preparing these novel compounds, and polymers stabilized by these novel compounds against the deteriorative effects of heat and light.

3,758,342
METAL FUEL BATTERY AND SYSTEM
Hideo Baba, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Continuation-in-part of application Ser. No. 776,548, Nov. 8, 1968. This application Feb. 23, 1971, Ser. No. 117,901
Claims priority, application Japan, Nov. 20, 1967, 42/74,625; Apr. 7, 1970, 45/29,689
Int. Cl. H01m 29/04
U.S. Cl. 136—86 A 21 Claims



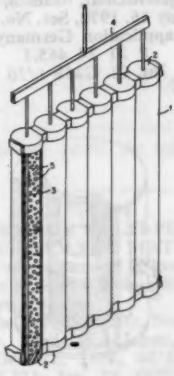
A metal fuel battery having a number of cells, each cell having at least one gas diffusion electrode (positive electrode) and one cathode collector electrode (negative electrode) periodically between which a liquid electrolyte having powder metal fuel dispersed therein is caused to flow in a downward direction. The battery is used in a system in which the metal fuel is replenished from time to time as is also the electrolyte.

3,758,343
SILVER ZINC BUTTON CELL
Steven A. Magritz, Madison, Wis., assignor to ESB Incorporated
Filed Mar. 22, 1972, Ser. No. 236,848
Int. Cl. H01m 3/04
U.S. Cl. 136—111 4 Claims



A silver oxide zinc cell is described having dual separation comprising an absorbent mat placed adjacent the silver oxide cathode and a semipermeable membrane barrier adjacent the anode. The cell is distinguished in having an opening through the semipermeable membrane barrier. The purpose of the opening in the barrier is to permit equalization of gas pressure between the cathode side of the barrier and the anode side.

3,758,344
METHOD OF PRODUCING AN ELECTROLYTIC-CELL ELECTRODE WITH ACTIVE IRON MASS
Antony Oliapuram, Frankfurt am Main, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed Aug. 10, 1971, Ser. No. 170,446
Claims priority, application Germany, Oct. 30, 1970, P 20 53 362.4
Int. Cl. H01m 13/08
U.S. Cl. 136—120 FC 7 Claims



An electrode for metal-air battery or like electrolytic cells is made by filling a granular active iron mass into a microporous and lye-resistant envelope tube of synthetic

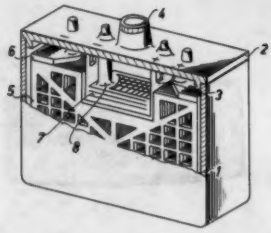
plastic web material and thereafter subjecting the iron-filled envelope tube to a currentless nickel bath to thereby coat the iron mass with a nickel layer permeable to electrolyte.

3,758,345

AUXILIARY BATTERY FOR MOTOR VEHICLES

Laszlo Toth, Budapest, Hungary, assignor to Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat, Budapest, Hungary

Filed Nov. 9, 1971, Ser. No. 198,010
Claims priority, application Hungary, Nov. 20, 1970, TO-831
Int. Cl. H01m *39/00*
U.S. Cl. 136—181 5 Claims



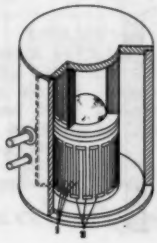
An electric storage battery for motor vehicles is composed of two subunits which are a main storage battery and an auxiliary storage battery. Both subunits are interconnected by a switch which, in one operational position, disconnects the auxiliary battery from the main battery and connects it directly to ignition terminals of the ignition system of a motor vehicle. Thus, the spark plugs of the engine receive the full voltage of the electric storage battery undiminished by voltage drops such as caused by operating the electric starting motor of the system. Thereby, the disadvantage of starting difficulties experienced with motor vehicles having normal electric storage batteries in cold weather is successfully avoided. The main unit has U-shaped plates, and these define a recess in which the auxiliary unit is received.

3,758,346

THERMOELECTRIC GENERATOR

Dieter Falkenberg, Erlangen, Theodor Renner, Nuremberg-Reichelsdorf, Gerhard Rittmayer, Erlangen, and Josef Winkler, Nuremberg, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 16, 1972, Ser. No. 253,854
Claims priority, application Germany, May 17, 1971, P 21 24 465.1
Int. Cl. G21h *1/10*
U.S. Cl. 136—202 24 Claims



A thermoelectric generator for supplying current for heart pacemakers is disclosed. The thermoelectric generator has a radioactive heat source and a plurality of thermocouple elements formed using microfilm technology. The container of the isotope heat source is arranged between two thermocouple units having thin-film thermocouple elements. These elements are evaporated onto a foil of plastic which is coiled up to form a hollow cylinder. The container is configured as a body of rotational symmetry and is fixed between the ends of the thermocouple units. The thermoelectric generator affords the advantages of low structural height and high efficiency.

3,758,347

METHOD FOR IMPROVING A METAL CASTING

Kenneth W. Stalker, Cincinnati, Ohio, assignor to General Electric Company

No Drawing. Filed Dec. 21, 1970, Ser. No. 100,426
Int. Cl. C21d *1/74*
U.S. Cl. 148—4 6 Claims

A metal casting of an alloy based on an element selected from the group consisting of Ni, Co, Fe and Ti and having internal discontinuities, such as porosity, microfissures and internal tears, is improved by applying pressure to an outer surface of the casting surrounding the discontinuities while at the same time heating the casting, at least in its portion including the discontinuities, at a temperature less than that which will cause substantial degradation of the mechanical properties of the metal. The casting outer surface is coated with a coating of sufficient thickness to bridge the surface openings of the surface-connected discontinuities and to prevent penetration of the pressurizing fluid into such surface discontinuities. The combined amount of and time of application of pressure and the heating is sufficient to press together and to diffusion bond walls of the discontinuity.

3,758,348

METHOD FOR PREPARING SOLAR CELLS

Dale M. Whigham, Ruffsdale, Pa., and Michael F. Amsterdam, Stirling, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of abandoned application Ser. No. 729,645, May 16, 1968. This application Aug. 13, 1970, Ser. No. 63,411
Int. Cl. H01m *17/02;* H01l *7/44, 7/46*
U.S. Cl. 148—175 1 Claim

This invention provides a process for making a solar cell. Material for the solar cell is deposited on the substrate. A wrap around electrical contact shunts or short circuits any P-N junction formed between the deposited material and the substrate but not the P-N junction within the deposited material. The wrap around electrical contact is alloyed to the substrate and to the deposited material at the same time that a diffusion is being carried out in the deposited material to form a P-N junction therein.

3,758,349

METHOD OF PRODUCING CHEMICAL CONVERSION COATINGS ON METAL SURFACES

Rudolf Engesser, Frankfurt am Main, Germany, assignor to Oxy Metal Finishing Corporation, Warren, Mich.

No Drawing. Filed Sept. 24, 1971, Ser. No. 183,695
Int. Cl. C23f *7/08*
U.S. Cl. 148—6.15 Z 2 Claims

A method of producing a chemical conversion coating on metal surfaces using an aqueous coating solution and keeping the solution active by periodically adding supplementing chemicals comprising contacting the metal surface to be coated at the beginning of the layer forming treatment with a coating solution which contains a majority of the supplementary chemicals and after contacting the metal passing the unused supplementary chemicals into the coating solution.

3,758,350
METHOD OF MAKING A DIE FOR STAMPING OUT CIRCUIT BOARDS
Walter Weglin, Seattle, Wash., assignor to Jerobee Industries, Inc., Redmond, Wash.
Filed May 21, 1971, Ser. No. 145,623
Int. Cl. G03c 5/00
U.S. Cl. 156—8 12 Claims

A process of making an improved die for stamping out from a foil sheet circuit board elements onto a substrate. The particular die configuration made by this process is a "modified flat face die," wherein the middle portion of an individual die element is moderately recessed.

The process is as follows:

(a) First a conventional flat face die, comprising flat face die elements with intervening recess areas, is formed;

(b) The recess areas are filled with an acid-resisting epoxy, and a photo-resist is applied over the epoxy in a manner to overlap the outer edge portions of the die elements so that the middle portion of each die element is exposed;

(c) The die is placed in an etching solution to form a moderate recess in the middle portion of each die element, with shoulders being formed along the outer portions of each die element;

(d) Then the acid-resist material is removed, and the die surface is again etched for a short period of time;

(e) The epoxy filler is removed.

In a first embodiment, the die is etched the second time only enough to round off the inner edge of each shoulder of the die element to leave flat face shoulder portions on the die element. In a second embodiment, the inner portion of each of the two shoulders is etched away to leave a knife edge at the outer edges of each die element.

To provide the acid-resist coating which overlaps the outer portions of the die elements as described in Step (b) above, an accurate photographic reproduction is made by placing the flat faced die in a developing solution and pressing a fully exposed film against the die. After the film portions exposed to the developing solution are developed, the film is placed in a fix solution to make a photographic reproduction. Then a positive is made from this reproduction and this positive is placed against an unexposed film and light is directed through the positive onto the film. Simultaneously the reproduction is rotated laterally to a very moderate extent while maintaining the same orientation of the reproduction, so that the transparent portions of the reproduction (corresponding to the recess areas of the die) are widened moderately to make a modified reproduction. Then an acid-resist coating corresponding to the transparent areas in this modified pattern is placed on the die face so as to form the photo-resist coating used in Step (b) above.

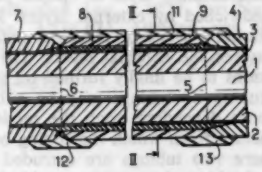
3,758,351
PREFERENTIAL ETCHING METHOD FOR FERROUS BASE METALS
Walter J. Striedieck, Port Matilda, and George Daniel Woodring, Bellefonte, Pa., assignors to Chemcut Corporation, State College, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 749,591, Aug. 2, 1968. This application July 15, 1971, Ser. No. 163,036
Int. Cl. C23b 3/02
U.S. Cl. 156—18 7 Claims

Liquid compositions for etching metals and alloys and methods of etching employing these compositions are disclosed in which selected metal stock or metal objects, preferably of a ferrous base, are preferentially etched to remove portions of metal from the workpiece in the production of final etched articles. The composition contains as major ingredients a (1) pH regulator component comprising an acidic precursor and (2) an undercut protector component comprising cupric ions and/or oxygen-bearing salts of phosphorous or arsenic in particular combinations and proportions with the pH regulator. A preferred embodiment of the invention utilizes a particular combination of these components which interact compatibly to produce a synergistic effect in that a vastly superior result is obtained as compared to that which would be expected.

3,758,352
POROUS FIBROUS SUBSTRATE STRUCTURE PRODUCED IN OXIDIZING ATMOSPHERE
Clarence E. Northway, Lake View Terrace, and Ronald L. Pegg, Costa Mesa, Calif., assignors to Haveg Industries, Inc., Wilmington, Del.
No Drawing. Filed May 23, 1972, Ser. No. 256,069
Int. Cl. B44d 1/02
U.S. Cl. 156—60 18 Claims

A fibrous graphite unit is made by taking plies of cloth of at least 80% carbon assay (carbon or graphite cloth) which is impregnated with a B-stage resin and stacking one on another to form a substrate unit. The unit is then cured and is then treated in an oxygen containing atmosphere to decompose the resin to obtain a more porous substrate than if the resin were pyrolyzed in an inert atmosphere. An alternate method is to pyrolyze the unit in an inert atmosphere and then place the pyrolyzed unit in an oxygen containing atmosphere to produce a more porous unit. The unit may be left in its present state or be carbonized or graphitized, depending upon desired results. The unit is also infiltrated with pyrolytic carbon which may be converted to pyrolytic graphite.

3,758,353
METHOD OF WELDING AN ELECTRIC CABLE SHEATHING, EMPLOYING A HEAT-SHRINKABLE THERMAL SCREEN
Claude Hurlez, Calais, France, assignor to Cables de Lyon Alsacienne, Lyon, France
Filed Aug. 13, 1970, Ser. No. 63,373
Claims priority, application France, Aug. 13, 1969, 6927889
Int. Cl. B32b 31/00; H01b 13/06
U.S. Cl. 156—52 9 Claims

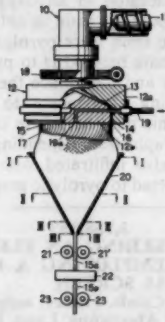


A heat-shrinkable thermal screen of thermoplastic material is positioned on a portion of a cable requiring reconstitution, and thermally controlled prior to welding a fresh sheathing portion about the screen covered cable portion.

3,758,354
MANUFACTURE OF MULTI-PLY BOARD OF THERMOPLASTIC MATERIAL
Masao Sakurai, Yokohama, and Kikuo Muto, Kawasaki, Japan, assignors to Gunze Kobunshi Kogyo Kabushiki Kaisha, Kanagawa, Japan
Filed Oct. 15, 1970, Ser. No. 80,935
Claims priority, application Japan, Oct. 18, 1969, 44/83,064; Oct. 22, 1969, 44/84,064; Dec. 18, 1969, 44/101,311; Jan. 29, 1970, 45/7,455; Feb. 2, 1970, 45/8,569; May 8, 1970, 45/38,900
Int. Cl. B29d 9/00; B32b 5/18, 31/02
U.S. Cl. 156—79 5 Claims

A method of manufacturing a multi-ply board of thermoplastic material, the board being highly resistant to

bending stresses in different directions, the method including extruding one or two continuous tubing or tubings, forming spaced, linear projections or ribs on the inner surface of the tubing or tubings, expanding the tubing or tubings to a predetermined outside diameter through introduction theretinto of compressed air whereby, if two tubings are extruded, the two tubings are adhered to each other to form an integral tubing, twisting the tubing or tubings so that the linear projections are deviated sidewardly from the longitudinal direction, and forming the thus expanded tubing into a flat sheet which has at least one intermediate layer of spaced projections which are sandwiched by two external layers. The last step of forming the flat sheet may include the steps of deforming the expanded tubing progresively into a substantially flat sheet and cooling and setting the resultant



sheet or the steps of cutting the expanded tubing in the longitudinal direction so that the tubing is opened into the form of a sheet and pressing the facing sides of the opened sheet upon each other to form a sheet which has at least one intermediate layer of spaced partition walls which are sandwiched by external layers. If desired, in the latter instance, a sheet of foaming material may be interposed between the external layers. The above mentioned projections to be finally formed on the inner surface of the tubing or tubings may be either linear or meandering ones depending upon the mode of rotating the mold structure from which the tubing or tubings are extruded. Where two tubings are extruded and formed into an integral tubing, the resultant multi-ply board may include two layers each of a group of partition walls, the two groups of the partition walls intersecting each other.

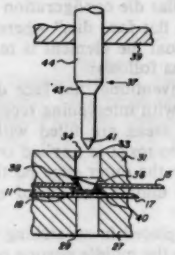
3,758,355

METHOD AND APPARATUS FOR SPLICING WEBS OF PHOTOGRAPHIC FILM OR PAPER

Lawrence R. Witherow, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,001
Int. Cl. B31f *5/00*; B32b *3/10*; G03d *15/04*
U.S. Cl. 156—157 **8 Claims**

A method for splicing together first and second webs in end-to-end relationship comprising the steps of (a) providing at least one hole through each web; (b) juxtaposing said webs end-to-end; (c) positioning two splicing patches comprising thermoplastic material on opposite surfaces of said webs and overlying end portions of both webs and said holes therein; (d) passing through both of said patches and each of said holes a hot pin to soften and merge together in each hole softened plastic from said patches. A plurality of joinders can be preformed in this way simultaneously. A joinder can also be provided in the space between the ends of the webs. The initial holes in the webs can be pierced by the hot pin prior to splicing. The apparatus for performing the method includes a first plate having a first hole therein adapted to support the webs and patches, a second plate having a second hole therein aligned with the first hole, a pin



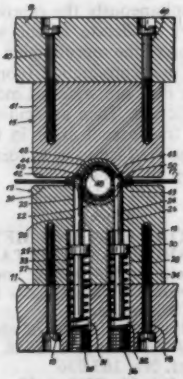
movable axially through the two holes, and means for heating the pin. The second plate has an annular boss on the periphery of its hole to force the patch into the second hole slightly before penetration by the heated pin. The two spliced webs as an article of manufacture are also within the invention.

3,758,356

METHOD OF BONDING FLEXIBLE PLASTIC TUBES TO FABRICS

John C. Hardy, Weatogue, Conn., assignor to Angelica Corporation, St. Louis, Mo.

Filed Feb. 11, 1971, Ser. No. 114,599
Int. Cl. B29c *17/07, 27/00*; B32b *3/20*
U.S. Cl. 156—160 **5 Claims**



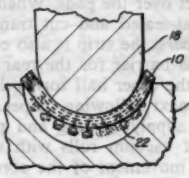
Flexible plastic tubing is bonded to open-mesh stretch fabric between heat-sealed plastic discs. Blocks on a fixed lower plate and blocks on a movable upper plate of a heat and pressure bonding machine have grooves between retractable pins for receiving the tubing. Retractable pins project upwardly from the blocks on opposite sides of the grooves in the bottom blocks and receive the two plastic discs with the fabric and the tubing positioned between the discs. The upper plate of the machine applies pressure and heat to cause the plastic discs to extrude together through the pores of the fabric to produce the bond.

3,758,357

MAKING MOLDED FIBER BOARD

David W. Akerson, Roseville, Minn., and Duer L. Miller, Deerfield, Ill., assignors to Conwed Corporation

Filed Aug. 11, 1971, Ser. No. 170,807
Int. Cl. B27m *1/02*; B31f *1/36*
U.S. Cl. 156—196 1 Claim



A method of molding a curved or other like form from a flat wood fiber insulation board containing at least 5% starch is disclosed. The method requires wetting with water at least one side of the board prior to the molding step.

3,758,358

METHOD OF AND APPARATUS FOR MAKING A PADDED THREE-DIMENSIONAL APPLIQUE

Minoru Kuroda, Amagasaki-shi, Hyogoken, Japan, assignor to Nishizawa Shoji Co., Ltd., Osaka, Japan, and The Dimension Weld International Corporation, New York, N.Y.

Continuation of application Ser. No. 793,929, Jan. 21, 1969, which is a continuation-in-part of application Ser. No. 662,962, Sept. 21, 1967, both now abandoned. This application Feb. 3, 1971, Ser. No. 112,404
Claims priority, application Japan, Dec. 19, 1966, 41/115,532
Int. Cl. B32b *31/00, 31/18, 31/20*
U.S. Cl. 156—222 8 Claims

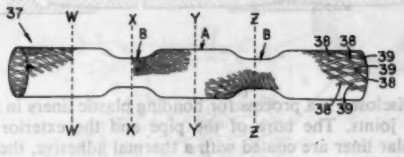
A method of making a three-dimensional foam-filled applique and an apparatus for carrying out the method. A layer of synthetic plastic foam material having an exposed surface of predetermined appearance is placed onto a support. A layer of sheet material portions of which may be light-transmissive, is superimposed upon the exposed surface of the foam material. At least one of the materials is latently adhesive. At least the layers are severed inwardly of the edges along the contour line of the desired applique. Simultaneously the layer of sheet material is pressed against the support at least along a narrow zone inwardly of the contour line and the latently adhesive material is activated to thereby adhere the sheet material in the narrow zone to the support across the layer of foam material.

3,758,359

METHOD OF MANUFACTURING FOAMED PLASTIC TUBULAR NETS

Kimikazu Azuma, 3–18 Matsugaoka 3-chome Kugenuma, Fujisawa-shi, Kanagawa-ken, Japan

Filed Mar. 30, 1971, Ser. No. 129,445
Claims priority, application Japan, Apr. 2, 1970, 45/28,086, 45/28,087
Int. Cl. B29h *9/02*
U.S. Cl. 156—244 3 Claims



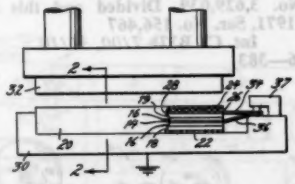
A tubular network structure in which the size, spacing and/or orientation of the strands is changed at regular intervals along the lengthwise direction thereof. The strands of the network structure are made of foamed plastic. The network structure can be made into a protective cover or sleeve for objects. The network structure is made by extruding a foamable plastic through an annular rotary head die comprising a pair of rotary members which are rotatable relative to each other in a direction transverse to the direction of extrusion. The relative rate of rotation of the rotary members is changed at regular intervals to change the size, spacing and/or orientation of the strands so that the pattern of the network structure changes at regular intervals along the length thereof.

3,758,360

SHEATHED SOFT-FEEL HANDLE AND METHOD OF MAKING SAME

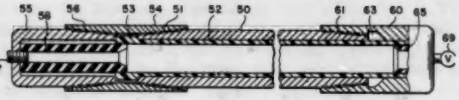
Marton J. Szabo, Camden, N.J., assignor to Philadelphia Handle Company, Inc., Camden N.J.

Original application Aug. 4 1971, Ser. No. 168,828, now Patent No. 3,736,621. Divided and this application May 8, 1972, Ser. No. 251,415
Int. Cl. B23k *13/02*; B29c *19/04*
U.S. Cl. 156—273 4 Claims



A soft-feel handgrip for a handle construction in which cushioning members for the top and bottom of the grip are provided with a flexible conductive member on the outer face of the bottom cushioning member and an open thermoplastic sheath wrapped around the members to provide overlapped sheath ends directly against the conductive member whereby the overlapped sheath ends can be effectively sealed dielectrically. The handgrip may include non-metallic fillers or stiffeners and/or a spring metal bar spaced from the overlapped sheath ends by the bottom cushioning member.

3,758,361
PROCESS FOR LINING PIPE JOINTS
John J. Hunter, 1801 N. Willis, Abilene, Tex.
Filed Nov. 16, 1970, Ser. No. 89,639
Int. Cl. B29c *17/04;* B32b *31/20*
U.S. Cl. 156—287 7 Claims

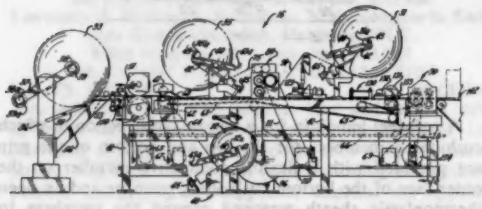


Disclosed is a process for bonding plastic liners in metal pipe joints. The bore of the pipe and the exterior of a tubular liner are coated with a thermal adhesive, the liner inserted into the pipe bore, and the liner heated internally by passing steam through the liner under pressure. The flow of steam through the liner is controlled to cause heating of the liner to progress axially from one end of the pipe. The liner is then expanded to intimately contact and bond to the bore of the pipe by pressurizing the liner while hot.

3,758,362
DUAL LATEX ADHESIVE SYSTEM
Martin L. Brown, Elkton, Md., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 26, 1971, Ser. No. 128,557
Int. Cl. B32b *7/00, 7/04*
U.S. Cl. 156—310 7 Claims

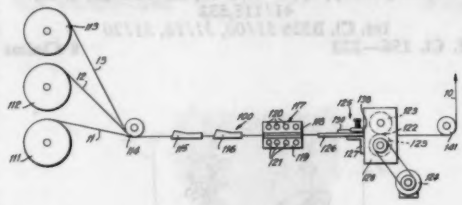
Rapid bonding of substrates is accomplished by (a) coating a surface of a substrate with an anionic elastomeric latex and coating a surface of a second substrate with a cationic elastomeric latex, (b) contacting the coated surfaces of the substrates while the latex coatings remain uncoagulated, and (c) maintaining contact between the coated surfaces until coagulation of both latex layers occurs.

3,758,363
APPARATUS FOR FORMING DISPOSABLE DIAPERS
Richard H. Frick, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Original application Nov. 18, 1968, Ser. No. 776,580, now Patent No. 3,629,039. Divided and this application June 24, 1971, Ser. No. 156,467
Int. Cl. B32b *7/00, 31/10*
U.S. Cl. 156—383 5 Claims



A method and apparatus for inserting a leak preventing barrier of thin impervious material between the fluid pervious cover sheet and the absorbent core of a disposable diaper is disclosed. The barrier, which preferably comprises a narrow strip of thin plastic film affixed between the cover sheet and the backing sheet along a transverse heat-seal line at each end of the diaper, is first drawn from a continuous supply roll and cut into lengths twice as long as desired. Each cut length is then placed across the ends of two adjacent core pads moving along a conveyor path in end-to-end relation prior to applying a continuous cover sheet over the pads. When the material between pads is heat-sealed and cut transversely to form the individual diapers, the strip is also cut in half so that one half forms the barrier for the rear end of the leading diaper, while the other half forms the barrier for the front end of the next following diaper. In its preferred form the barrier supply, cutting and placing apparatus includes a pair of vacuum rolls with valving driven in timed relation to movement of the core pads. Also disclosed is a method and apparatus for preliminarily applying limited quantities of perfume to discrete locations on the core pads before application of the barrier strip such that the perfumed portion of the pad is sandwiched between the impervious backing sheet and the impervious barrier strip.

3,758,364
APPARATUS FOR THE MANUFACTURE OF LAMINATED SHOULDER STRAP MATERIAL
Irving Edelman, Long Island City, N.Y., assignor to Maidrite Novelty Corp., Long Island City, N.Y.
Original application June 22, 1970, Ser. No. 47,984, now Patent No. 3,616,148. Divided and this application Apr. 26, 1971, Ser. No. 137,569
Int. Cl. B31f *1/00*
U.S. Cl. 156—463 4 Claims

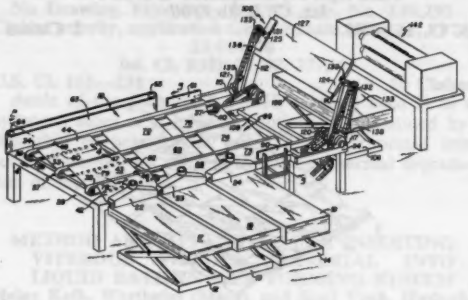


A shoulder strap material for articles of feminine wearing apparel has an outer shell or envelope of nylon tricot fabric enclosing a cotton fabric tape to which such shell or envelope is bonded by a hot melt or thermoplastic. In the apparatus for producing such strap material, folded side portions of a nylon tricot fabric tape which constitutes the shell or envelope are urged laterally toward each other to close a longitudinal medial seam of the strap material before the bonding is completed by passage through a set of nip or pressure rollers.

3,758,365
SHEET FEEDING APPARATUS
Walter W. Schilling, Ladner, British Columbia, Canada, assignor to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada
Original application Mar. 21, 1969, Ser. No. 809,295, now Patent No. 3,617,054. Divided and this application June 10, 1971, Ser. No. 151,733
Int. Cl. B32b *31/10, 31/12*
U.S. Cl. 156—538 13 Claims

Apparatus for feeding sheets or veneers from stacks thereof and located side-by-side to a station either singly

or in superimposed pairs. At the station there is apparatus for gripping the sheets or veneers along opposite



edges thereof and substantially throughout the length of said edges, and swinging these over a lay-up table where they are released.

3,758,366

DEVICE FOR WELDING AND CUTTING FILMS OF PLASTICS MATERIALS IN APPARATUS FOR PACKING GOODS

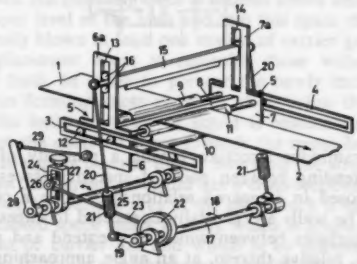
Aris Ballestrazzi, Via Plessi 19; Lamberto Tassi, Via G. di Vittorio 60; and Gianni Tosarelli, Via 1° Maggio 217, all of Vignola (Modena) Italy

Filed Feb. 26, 1970, Ser. No. 14,585

Claims priority application Italy, Feb. 26, 1969, 13,375/69, Patent 858,011

Int. Cl. B32b *31/18*

U.S. Cl. 156—515 2 Claims



A device for welding and severing a film of plastics materials as used in wrapping articles is disclosed, which permits that the welding and severing operations be satisfactorily carried out in spite of the fact that the plastics material film is moved continuously on and by a conveyor belt or a similar conveyance mechanism. The improvement consists essentially in that the carriage which supports the welding tools proper is guided on fixed horizontal ways, the reciprocation stroke of the carriage being adjustable, the carriage having also vertical guides to limit the motion of the welding rod.

3,758,367

APPARATUS FOR APPLYING ADHESIVE TAPE, PARTICULARLY SELF-ADHESIVE TAPE, TO A MOVING SUPPORT SURFACE IN THE FORM OF A CONTINUOUS WEB, A SHEET OR AN ARTICLE

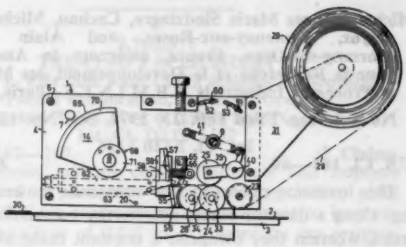
Bror Hugo Olof Berg, Goteborg, Sweden, assignor to Molnlycke AB, Goteborg, Sweden

Filed Oct. 27, 1969, Ser. No. 869,702

Claims priority, application Sweden, Nov. 19, 1968, 15,721/68

Int. Cl. B32b *31/20*

U.S. Cl. 156—519 2 Claims



Apparatus for applying adhesive tape to a moving recipient surface in the form of a continuous web, a sheet or an article, having means for advancing the leading end of the tape into contact with the recipient surface and an applicator foot which has an arcuate working surface and secures firstly the leading end of the tape to the recipient surface and then presses successively the remainder of the tape into adhering engagement with the surface as the tape accompanies the same. The applicator foot has essentially the form of a sector of a circle, the arc of which constitutes the working surface and at the apex of which there is arranged a hub, by which the foot is journalled to a driven shaft which is in rotary engagement with the foot through an idling or free wheel movement corresponding at least to the length of the arcuate working surface of the foot.

3,758,368

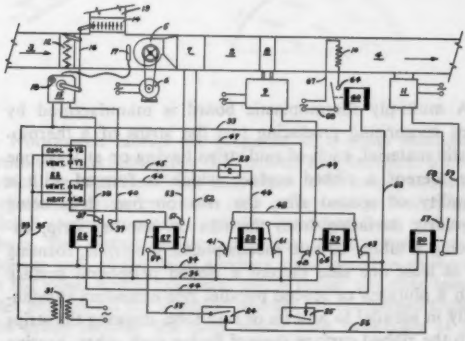
AUTOMATIC AIR CONDITIONING SYSTEM

Allen Trask, Utica, N.Y., assignor to The Mechaniwatt Corporation, Utica, N.Y.

Filed Oct. 4, 1971, Ser. No. 186,312

Int. Cl. F24f *3/14*

U.S. Cl. 165—21 3 Claims



An air conditioning system wherein the functions of heating, cooling, humidifying, dehumidifying, ventilation,

and natural cooling are automatically controlled during all types of weather by standard control instruments including an indoor 4-stage thermostat, an outdoor thermostat, and two humidistats, programmed in coordinated functional sequence through electrical control circuits and relays.

3,758,369

RESISTANCE AND MODULUS REINFORCING MATERIALS

Michel Jacques Marie Sindzingre, Cachan, Michel Villamayor, Fontenay-aux-Roses, and Alain Robert, Morsang-sur-Orge, France, assignors to Association pour la Recherche et le Developpement des Methodes et Processus Industriels A.R.M.I.N.E.S., Paris, France

No Drawing. Filed Feb. 23, 1971, Ser. No. 118,187

Int. Cl. B32b *5/16*

U.S. Cl. 161—60 **4 Claims**

This invention relates to new composite materials having, along a director plane, noteworthy mechanical properties, wherein they comprise a resistant material, in flat form disposed parallel to the director plane and flakes or bands or substantially flat form, constituted of or comprising a material with high modulus, said flakes or bands also being disposed parallel to the director plane.

3,758,370

METHOD FOR MANUFACTURING A MULTI-PLY BOARD OF THERMOPLASTIC MATERIAL AND PRODUCT RESULTING THEREFROM

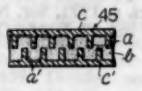
Masao Sakurai, Yokohama, Kikuo Muto, Kawasaki, and Noritsugu Sugimoto, Sagamihara, Japan, assignors to Gunze Kobunshi Kogyo Kabushiki Kaisha, Kanagawa, Japan

Filed May 7, 1971, Ser. No. 141,193

Claims priority, application Japan, May 8, 1970, 45/38,900; Sept. 11, 1970, 45/79,333; Nov. 26, 1970, 45/103,635; Feb. 2, 1971, 46/3,605; Feb. 12, 1971, 46/5,564; Feb. 15, 1971, 46/6,365

Int. Cl. B32b *5/18*

U.S. Cl. 161—69 **10 Claims**



A multi-ply thermoplastic board is manufactured by steps comprising producing two flat strips of a thermoplastic material, each of said strips having on at least one side thereof a ribbed surface which is formed with a plurality of spaced ribs, the ribs on one strip being angularly deviating from the ribs on another strip, extruding a tubing of said thermoplastic materials, forming on at least one side thereof a ribbed peripheral surface with a plurality of spaced parallel ribs extending substantially in parallel to an axis of said tube, drawing the strips with the ribbed surface thereof facing each other, heating tops of said ribs to the fused condition, and combining the strips together through fusion of the facing top of the ribs.

3,758,371

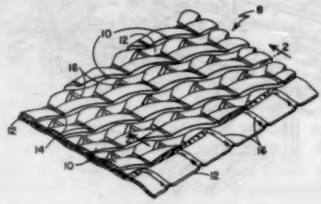
PLASTIC NET LAMINATE MATERIAL

Theo O. Lang, Leominster, and Thomas A. Lane, East Pepperell, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed Apr. 17, 1970, Ser. No. 29,596

Int. Cl. B32b *7/00*

U.S. Cl. 161—88 **2 Claims**



A laminate material and method of manufacture thereof wherein one of the layers comprises a plastic net made of a foamed or expanded plastic and a layer of preformed continuous sheet material is joined thereto.

3,758,372

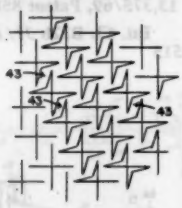
FORAMINOUS STRUCTURES

Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Original application Feb. 16, 1970, Ser. No. 11,510. Divided and this application July 22, 1971, Ser. No. 165,285

Int. Cl. B32b *3/10*

U.S. Cl. 161—109 **6 Claims**



A foraminous structure having a plurality of walls, each extending between pairs of spaced surfaces which are disposed in staggered relationship along a common plane. The walls are pivotally connected to edges of the spaced surfaces between which they extend and may be disposed, relative thereto, at an angle approaching 180°.

3,758,373

SPRAY-SPUN CONTINUOUS TUBULAR STRUCTURE

Ernest Joseph Rich, Glen Gardner, N.J., assignor to Celanese Corporation, New York, N.Y.

Original application July 10, 1968, Ser. No. 743,863, now abandoned. Divided and this application Apr. 12, 1971, Ser. No. 133,443

Int. Cl. B32b *5/08;* **D04h** *3/07*

U.S. Cl. 161—169 **5 Claims**

A spray-spun nonwoven tubular structure is produced by spray spinning a fiber-forming polymer onto the inner surface of a circular forming base and withdrawing the tube continuously as it is formed.

3,758,374

RUBBER-POLYESTER COMPOSITIONS

Boris Nicholas Leyland and Neil Frederick Wood, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 4, 1971, Ser. No. 140,297
Claims priority, application Great Britain, May 14, 1970, 23,414/70
Int. Cl. B32b *25/02, 27/36*
U.S. Cl. 161—231 10 Claims

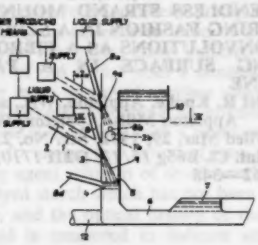
Acids of the formula $R_2P \cdot OH$, wherein each R is a hydrogen atom or a hydroxy, optionally substituted hydrocarbyl or heterocyclic group, are incorporated into polyester-reinforced rubbers to prevent thermal degradation of the polyester.

3,758,375

METHOD AND APPARATUS FOR INSERTING VITREOUS FIBROUS MATERIAL INTO LIQUID BATH IN WEB FORMING SYSTEM

Heinz Keib, Wertheim (Main), and Karl Veeh, Hasloch, Unterfranken, Germany, assignors to Glaswerk Schuller GmbH, Wertheim, Germany

Filed Oct. 6, 1970, Ser. No. 78,349
Claims priority, application Germany, Oct. 8, 1969, P 19 50 612.8
Int. Cl. D21f *1/02, 11/02;* D21h *5/18*
U.S. Cl. 162—156 9 Claims



Vitreous fibers are dispersed in a predetermined ratio in a liquid bath. From the liquid bath quantities of the liquid and of the fibers are continuously withdrawn for supply to a user device, and the liquid and the fibers must be replenished to maintain the predetermined ratio between them. An enclosed space is located above and open to the upper level of the bath and into this space there is continuously blown at least one stream of carrier gas carrying replacement fibers to replenish those withdrawn from the bath. In order to prevent the newly incoming fibers from forming knots above or at or below the surface of the bath, a stream of liquid is continuously directed into the enclosed space towards the upper level of the bath in such a manner that it intersects the stream of carrier gas. The stream of liquid has a cross-sectional area smaller than the surface area of the bath which is exposed to the enclosed space and a velocity which is greater than the stream of carrier gas and which is so selected that the stream of liquid straightens and accelerates the fibers in the stream of carrier gas sufficiently to insert them into the bath and to depress them below the upper level thereof.

3,758,376

OPAQUE PAPERS AND PHOTOGRAPHIC PAPERS PREPARED THEREFROM

Carol R. Beckner, Watertown, and Klaus B. Kasper, Pulaski, N.Y., assignors to Schoeller Technical Papers, Inc., Pulaski, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 857,237, Sept. 11, 1969. This application June 29, 1970, Ser. No. 50,999
Int. Cl. D21h *3/80, 3/82*
U.S. Cl. 162—162 27 Claims

Gray opaque papers suitable for use in the photographic art are prepared by adding to a suspension of fibers, prior to forming, a light absorbing colorant, titanium pigment particles and a small amount of colloidal material carrying a surface electrical charge. In such papers, smaller than usual amounts of the light absorbing material are necessary to produce opacity to actinic light. Such papers can be basecoated with a white pigment coating, coated with a diffusion transfer positive emulsion and backcoated with a curl, water and solvent resistant coating to produce a positive print paper for use in pod development in diffusion type photographic processes.

3,758,377

TREATED PAPER SHEET

Rodger L. Fife, San Jose, Calif., assignor to Georgia-Pacific Corporation, Portland, Oreg.

No Drawing. Filed May 6, 1971, Ser. No. 141,014
Int. Cl. D21h *3/02*
U.S. Cl. 162—163 7 Claims

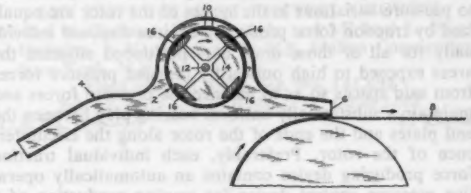
An aqueous mixture of lignosulfonate and isoprene resin ground to particulate form having a melting point of 80–130° C. in the ratio of lignosulfonate to isoprene resin in the range of 0.5:1 to 4:1 based on dry weights, said lignosulfonate and isoprene resin being mixed in the presence of from 0.1 to 5% based upon the dry weights of a urea formaldehyde resin having a viscosity range of 200 to 1500 centipoises prior to intermixing with cellulosic fibers.

3,758,378

METHOD AND APPARATUS FOR MANUFACTURING NON-WOVEN FABRICS

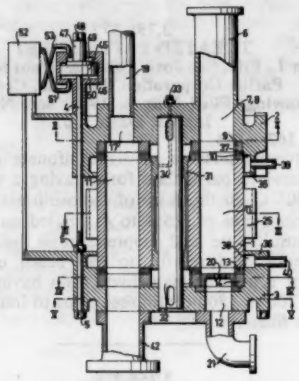
Dieter Berger, Lahnstein, Eberhard Hahnlein, Braubach (Rhine), and Horst Seeliger, Lahnstein, Germany, assignors to Feldmuhle Anlagen- und Produktionsgesellschmit mit beschrankter Haftung, Dusseldorf, Germany

Continuation-in-part of abandoned application Ser. No. 840,921, July 11, 1969. This application Dec. 8, 1971, Ser. No. 205,955
Claims priority, application Germany, July 15, 1968, P 17 61 853.0
Int. Cl. D21f *11/00*
U.S. Cl. 162—216 8 Claims



Non-woven fabrics are prepared on a paper machine from aqueous dispersions of relatively long synthetic fibers which are separated from each other in an axially slotted, cylindrical drum by means of a rotary agitator carrying airfoil sections on arms radially extending from a drive shaft. The airfoil sections sweeping the apertured, stationary wall of the drum produce cyclic pressure changes in the liquid within the drum which loosen any fiber bundles present. As the loosened bundles are discharged from the drum through the slots which flare outwardly at a small angle, the fiber bundles are fully broken up, and a dispersion substantially free from bundles reaches the paper machine. The dwell time in the drum can be held to a minimum to avoid the formation of new bundles by the agitator.

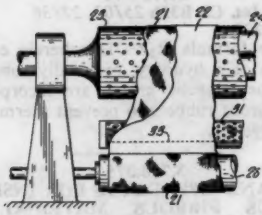
3,758,379
REVOLVER FEEDER FOR CELLULOSIC MATERIALS
Rolf Bertil Reinhall, Killingevagen 16, Lidingo, Sweden
Filed Feb. 3, 1971, Ser. No. 112,326
Claims priority, application Sweden, Feb. 12, 1970, 3,307/70
Int. Cl. D21c 7/06
U.S. Cl. 162—246 3 Claims



A revolver feeder for treatment of cellulose containing material comprising a rotor having a plurality of spaces for the material extending axially through the rotor and adapted in different positions of the rotor to be brought into communication with openings formed in, respectively, a feed end plate and a discharge end plate so as during rotation of the rotor to be fed with material and subsequently with treating fluid under high pressure to be discharged upon further rotation of the rotor, said end plates being interconnected by draw bars equally spaced about the circumference of said end plates outside said rotor. Unbalanced pressure forces acting on the end plates due to pressure variations in the spaces of the rotor are equalized by traction force producing devices disposed individually for all or those draw bars positioned adjacent the areas exposed to high outwardly directed pressure forces from said spaces so as to balance the pressure forces and maintain a substantially uniform bearing play between the end plates and the ends of the rotor along the circumference of the rotor. Preferably, each individual traction force producing device contains an automatically operative pressure control device for causing production of a traction force counterbalancing an outwardly directed increased pressure from the adjacent space of the rotor. In order to establish a predetermined bearing play or a floating contact, removable bearing discs or sealing discs are interposed between the opposing faces of the rotor and the end plates.

3,758,380
PAPER MACHINE COUCHING BOX WITH A MULTIPERFORATE SURFACE
William E. Hawkings, Alma, Quebec, Canada, assignor to The Price Company, Limited, Quebec, Canada
Filed July 6, 1971, Ser. No. 159,599
Int. Cl. D21f 2/00
U.S. Cl. 162—306 5 Claims

A couching box for facilitating separation of a paper web from the forming wire includes means adapted to act momentarily on the moving wire and web to withdraw air and water from a supported area of the wire and web between the couch roll and the turning roll, and to release the web quickly and evenly from such action just prior to its separating from the web. This facilitates separation of the web, reduces stress on the paper, minimizes web breaks, and increases production efficiency. The couching



box has a hard plane multiperforate surface which is separated from an imperforate surface by an intersecting groove. Vacuum for air and water removal from the web is effective through the multiperforate surface and in the groove.

3,758,381
SINGLE ENDLESS STRAND MOUNTED IN SELF CENTERING FASHION IN A SERIES OF PARALLEL CONVOLUTIONS AS A FIBROUS WEB SUPPORTING SURFACE IN A PAPERMAKING MACHINE
Daniel R. Knoke, Appleton, Wis., assignor to Appleton Mills, Appleton, Wis.
Filed Mar. 29, 1972, Ser. No. 239,206
Int. Cl. B65g 15/12; D21f 1/10, 7/12
U.S. Cl. 162—348 13 Claims

A porous, moving, supporting structure for a fluid-impregnated web or sheet, having particular use as a supporting structure for a paper web in a papermaking machine. The web supporting structure is composed of a series of adjacent machine direction convolutions of a single strand mounted to travel in an endless path over a roll assembly. To prevent lateral displacement of the strand in the direction of the roll axes, the strand is wound in both left and right helices on the roll assembly. The counter-displacement tendencies of the merged left and right hand helices prevent the inherent tendency of the strand to drift laterally as it moves through its path of travel.

3,758,382
PROCESS OF FREEZING BLOOD USING A HYDROXYALKYL STARCH AS CRYOPROTECTIVE AGENT
Charles T. Knorpp, Ann Arbor, Mich., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed July 26, 1968, Ser. No. 747,806
Int. Cl. A61k 27/10
U.S. Cl. 195—1.8 10 Claims

A water-soluble hydroxyethyl or hydropropyl starch is used as cryoprotective agent for erythrocytes in the low

sub-zero freeze-preservation of blood. The cryoprotective agent is an extracellular solute and is metabolized in the blood stream.

3,758,383
PRODUCTION OF EXOTOXIN OF *BACILLUS THURINGIENSIS*

Tsuong R. Shieh, Bannockburn, and Martin H. Rogoff, Highland Park, Ill., assignors to International Minerals & Chemical Corporation, Libertyville, Ill.

No Drawing. Filed June 1, 1971, Ser. No. 149,079
Int. Cl. C12d *7/00*
U.S. Cl. 195—96 **15 Claims**

Method for the production of the exotoxin of *Bacillus thuringiensis* in high yield using a high carbohydrate medium and an acrystalliferous mutant of *Bacillus thuringiensis* var. *thuringiensis*.

3,758,384
PRECIPITATING AGENT SOLUTION FOR AMYLASE ASSAY

Arthur L. Babson and Susan R. Babson, Chester, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

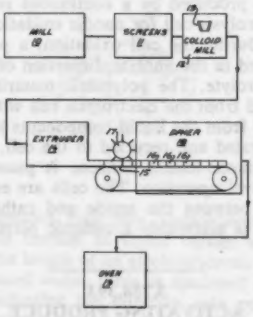
No Drawing. Continuation-in-part of application Ser. No. 205,294, Dec. 6, 1971. This application Apr. 5, 1972, Ser. No. 241,390
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **10 Claims**

A stable, temperature-independent precipitating agent solution comprising an aqueous solution of zinc chloride and ethylene glycol monoalkyl ether, buffered to maintain an apparent pH of 5.6 to 6.7 with a benzoate buffer, is provided for use in an improved amylase assay. In the assay, a fluid test sample containing an unknown concentration of amylase is incubated with a water-soluble, dyed starch substrate for a specified period of time, after which the precipitating agent solution of this invention is added to remove all dyed starch which has not been hydrolyzed by the amylase, and the optical density of the remaining supernatant fluid is measured to indicate amylase concentration in the test sample.

3,758,385
PROCESS FOR COKING LIGNITIC COAL

Karl Otto Paul Fischer, Chilliwack, British Columbia, Canada, assignor to Fischer Holdings Ltd., Chilliwack, British Columbia, Canada

Filed Dec. 3, 1970, Ser. No. 94,826
Int. Cl. C10b *45/02*
U.S. Cl. 201—6 **9 Claims**



A process for preparing coke from lignitic coal wherein a paste of coal and water is prepared. The paste is then divided into equi-axed pieces which are dried to reduce moisture content of the pieces below ten percent, and the pieces are then coked.

3,758,386
NOVEL ZINC PLATING PROCESS

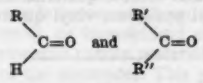
Chee Keung Chan, Murray Hill, N.J., assignor to M&T Chemicals Inc., New York, N.Y.

No Drawing. Filed Nov. 2, 1966, Ser. No. 591,412
Int. Cl. C23b *5/10*
U.S. Cl. 204—55 **26 Claims**

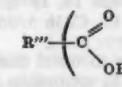
This invention relates to novel compositions and to a process of producing bright zinc deposits which comprises passing current from an anode to a metal cathode through an aqueous alkaline pyrophosphate solution containing at least one zinc compound providing zinc ions for electroplating zinc and at least one organic carrier compound selected from the group consisting of:

(a) bis[sulfonaphthyl] methane and salts thereof,
(b) naphthalene derivatives which contain substituents selected from the group consisting of sulfonic acids and their alkali metal salts, hydroxyl, amino, and imino radicals,
(c) benzene derivatives containing substituents selected from the group consisting of sulfonic acids and their salts with alkali metal, ammonium, alkyl, and imino radicals, and
(d) allyl sulfonic acid and its salts with alkali metals and ammonium;

at least one carbonyl compound having a structural formula selected from the group consisting of:



wherein R is selected from the group consisting of hydrogen, alkyl, aryl, and heterocyclic oxygen and sulfur radicals, and R′ and R″ are each selected from the group consisting of alkyl and aryl radicals; and at least one organic acid component of the formula:

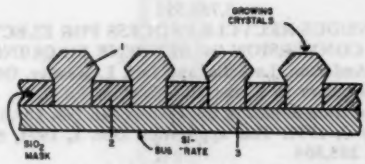


and anhydrides thereof, wherein *n* is an integer 1–4 and R‴ is selected from the group consisting of a hydrocarbyl group and an inertly substituted hydrocarbyl group.

3,758,387
ION DISPLACEMENT CRYSTAL GROWTH

Walter K. Zwicker, Scarborough, and Michael L. Fucci, Ossining, N.Y., assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 10, 1971, Ser. No. 141,692
Int. Cl. B01j *17/00*; B44d *1/18*; C23b *5/48*
U.S. Cl. 204—15 **11 Claims**



A method of growing single crystals of a metal or a semiconductor on a substrate which may be either a metal or a semiconductor by electrolytic displacement of the metal or metalloid and deposition through holes in a mask covering the substrate, the mask consisting of a material which is inert to the material being deposited.

3,758,388

ELECTROPLATING PLASTICS

James A. Shotton, % Phillips Petroleum Company, Bartlesville, Okla. 74004

No Drawing. Filed May 13, 1971, Ser. No. 143,147
Int. Cl. C23b *5/64*
U.S. Cl. 204—20 10 Claims

Electroplating of a moldable plastic containing a siliceous filler is achieved by conditioning a preformed article of said plastic by treatment with a high chromate-phosphate conditioning agent, thereafter preplating the conditioned article with an electrolessly platable metal, and electroplating the preplated article with a final finish to obtain a metal-plated plastic product.

3,758,389

PROCESS FOR NICKEL AND CHROMIUM PLATING

Hiroshi Maekawa, Sakai, Japan, assignor to Okuno Chemical Industry Company Limited, Osaka-shi, Japan

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,422
Int. Cl. C23b *5/08, 5/46, 5/50*
U.S. Cl. 204—41 11 Claims

In a process for subjecting an article to bright nickel plating and subsequently to chromium plating, the improvement in which the bath for said bright nickel plating contains a water-soluble quaternarized polymer of at least one of vinyl pyridines, vinyl quinolines and amino styrenes.

3,758,390

NOVEL CHROMIUM PLATING COMPOSITIONS

Hyman Chessin, Birmingham, Mich., and Maurice P. Best, Streetly, England, assignors to M & T Chemicals Inc., Greenwich, Conn.

No Drawing. Filed June 18, 1971, Ser. No. 154,703
Int. Cl. C23b *5/06*
U.S. Cl. 204—51 14 Claims

This invention relates to novel compositions and to a process for electroplating chromium plate onto a basis metal which comprises passing current from an anode to a cathode at least a portion of which contains a conductive metal layer through an aqueous acidic chromium plating solution containing:

(1) at least one chromium compound providing hexavalent chromium ions for electroplating chromium; at least one catalyst selected from the group comprising sulfate ions and fluoride ions, and
(2) at least one member of the group consisting of sulfoacetic acid, isethionate and isethionic acid; for a time sufficient to deposit a chromium electroplate having a thickness of at least 1×10^{-4} millimeter.

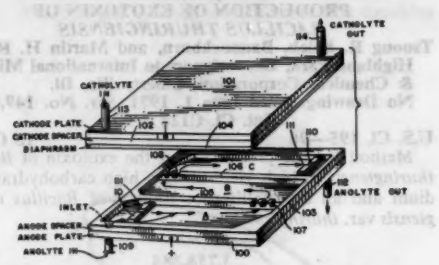
3,758,391

CONTINUOUS RECYCLE PROCESS FOR ELECTROLYTIC CONVERSION OF BENZENE TO QUINONE

Fred J. Anderson, La Salle, and Jack L. Kessler, Ottawa, Ill., assignors to Carus Corporation, La Salle, Ill.

Continuation-in-part of application Ser. No. 139,651, May 3, 1971. This application Dec. 1, 1971, Ser. No. 203,804
Int. Cl. B01k *1/00;* C07b *3/00*
U.S. Cl. 204—78 6 Claims

Quinone is produced by a continuous recycle process using electrolysis cells for anodic oxidation of benzene to quinone. During the cell operation, a polymeric material is formed which is continuously removed with the liquid components of the anolyte and separated therefrom before the anolyte liquid phases are recycled. The cells are employed with diaphragms between the anode and cathode compartments, which may be porous diaphragms or cationic permselective diaphragms. For operation with porous diaphragms, solids are also removed from the catholyte in its recycle circuit. The cells are



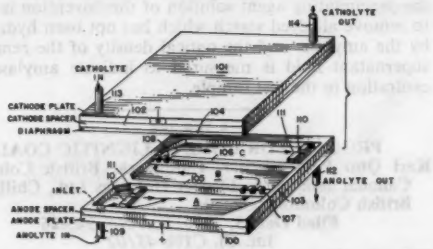
operated at temperatures above 20° C. and current densities above 5 amps/dm.^{2} with the production of an anode effluent gas composed predominately of carbon oxidation products.

3,758,392

CONTINUOUS RECYCLE PROCESS FOR ELECTROLYTIC CONVERSION OF BENZENE TO QUINONE

Fred J. Anderson, La Salle, and Jack L. Kessler, Ottawa, Ill., assignors to Carus Corporation, La Salle, Ill.

Filed May 3, 1971, Ser. No. 139,651
Int. Cl. B01k *1/00;* C07b *29/06;* C07c *49/64*
U.S. Cl. 204—78 2 Claims



Quinone is produced by a continuous recycle process using an electrolysis cell for anodic oxidation of benzene to quinone. During the cell oxidation, a polymeric material is formed in the anolyte dispersion of benzene and aqueous electrolyte. The polymeric material is continuously removed from the electrolysis cell with the anolyte and separated from the liquid components thereof, which are also separated and recycled to the cell, after part or all of the quinone-loaded benzene is passed through a quinone removal operation. The cells are employed with a diaphragm between the anode and cathode compartments, which is preferably a cationic permselective diaphragm.

3,758,393

ACTIVATING PRODUCT

Hugh E. Smith, Troy, N.Y., assignor to Norton Company, Troy, N.Y.

Filed Mar. 19, 1971, Ser. No. 126,193
Int. Cl. B01k *3/00;* C23b *5/72;* D04h *1/00*
U.S. Cl. 204—279 4 Claims

A surface activating material in the form of a sheet wherein a plurality of fine, flexible non-conductive pro-

jections, such as bristles, protrude substantially uniformly from a porous, extremely open, fluid-entrapping and

circulating matrix and wherein fine, non-conductive hard particles are affixed to such projections and to the surface of the open matrix from which they protrude.

3,758,394

FIXATION OF LEUCO VAT ESTER DYES BY ELECTRICAL CURRENT

Kurt A. Dellian, Spring Valley, N.Y., assignor to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 864,049, Oct. 6, 1969. This application May 27, 1971, Ser. No. 147,685

Int. Cl. B01k *1/00*; C07b *29/06*

U.S. Cl. 204—134 7 Claims

Leuco vat ester dyes are fixed onto cellulosic or polyester textile by electrical energy. The dyestuff is applied to the textile fibrous substrate in an aqueous solution and the textile is subjected to direct current from separate electrodes. Desirably, the dyed substrate is dried and heated to cause final fixation.

3,758,395

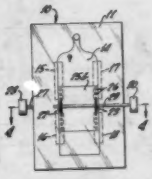
RESOLUTION AND SYMMETRY CONTROL IN CONTINUOUS FREE FLOW ELECTROPHORESIS

Allen Strickler, Fullerton, Calif., assignor to Beckman Instruments, Inc.

Filed May 15, 1972, Ser. No. 253,290

Int. Cl. B01k *5/00*

U.S. Cl. 204—180 R 22 Claims



In a continuous free flow electrophoresis apparatus having a thin curtain of liquid carrier medium which flows along the length of an electrophoresis space between a pair of spaced walls, there is disclosed a method and means for adjusting the effective zeta potential of the walls to optimize resolution and to compensate for asymmetry of the cell. Resolution is optimized by providing each of the walls of the apparatus with areas spaced along the length thereof having different zeta potentials and by either mechanically or electrically adjusting the relative electroosmotic contribution of each area. Asymmetry is eliminated by mechanically or electrically adjusting the asymmetries in the areas of the apparatus to be opposite in sense to each other.

3,758,396

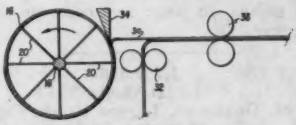
PREPARATION OF IMMOBILIZED ENZYME-MEMBRANE COMPLEXES BY ELECTRO-CODEPOSITION

Wolf R. Vieth, Belle Mead, Shaw S. Wang, North Brunswick, Seymour G. Gilbert, Piscataway, and Rakesh Saini, New Brunswick, N.J., assignors to Research Corporation, New York, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,546

Int. Cl. B01k *5/02*

U.S. Cl. 204—181 21 Claims



Immobilized enzyme-membrane complexes are prepared by adjusting the pH of an aqueous mixture of an active enzyme and an enzyme-immobilizing carrier material so that the enzyme and the carrier material both experience charge separation at the molecular or colloidal levels, and introducing the aqueous mixture into an electro-deposition vessel provided with at least one cathode and at least one anode across which an electrical potential is applied to deposit an immobilized enzyme-membrane complex of enzyme and carrier material onto the surface of at least one of the electrodes. This process is particularly suitable for coating immobilized enzyme-membrane complexes onto geometric supports used for biocatalytic modules. The process can be adapted for continuous manufacture of enzyme-membrane complexes simply by making one of the electrodes a moving roll with a means of continuous stripping.

3,758,397

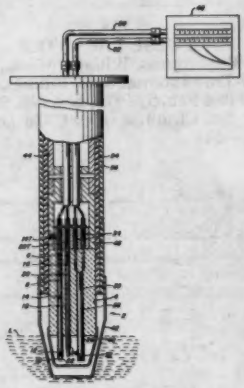
APPARATUS FOR OXYGEN DETERMINATION

Robert S. Rittiger, Allegheny Township, Westmoreland County, and Charles K. Russell, Franklin Township, Westmoreland County, Pa., assignors to United States Steel Corporation

Filed July 15, 1970, Ser. No. 54,986

Int. Cl. G01n *27/46*

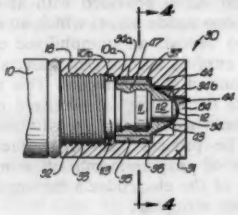
U.S. Cl. 204—195 S 4 Claims



Apparatus for measuring oxygen content of fluids at elevated temperatures by means of a galvanic cell with a solid oxide electrolyte and a reference electrode of a mixture of a metal and its oxide includes a sensor which comprises a refractory body member having a first longitudinal opening for receiving a fused silica tube which has the solid electrolyte fused to the end thereof which con-

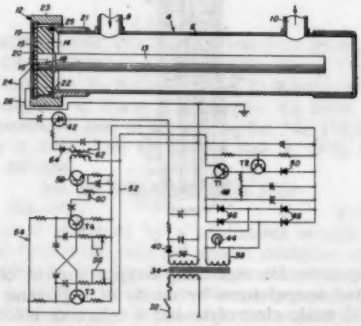
tacts the fluid. A rod of molybdenum or other conductor extends through the tube with the reference electrode between the end of the rod and the solid electrolyte. A second fused silica tube extends through a second longitudinal opening adjacent the first opening and contains a second rod of the same material as the first. The second rod also has its first end extending into the fluid. A thermocouple extends through the body member with its first end extending into the fluid and its second end connected to a connector. A steel lance has means at one end for receiving the connector and second ends of the rods and means at the other end for connecting to a voltage measuring means. In some instances the thermocouple may be omitted.

3,758,398
FLUID SENSOR
Thaddeus M. Doniguian, Laguna Beach, Calif., assignor to I.M.I., division of Becton, Dickinson and Company, Newport Beach, Calif.
Original application May 6, 1970, Ser. No. 35,187. Divided and this application June 30, 1971, Ser. No. 158,561
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 P **3 Claims**



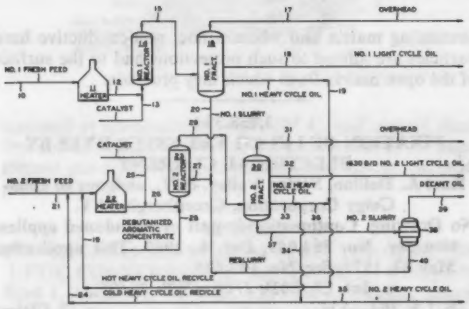
Membrane type polarographic oxygen sensors are constructed to be uniformly rechargeable with electrolyte by introducing a selected quantity of electrolyte into a tubular cap for reception at the electrode side of a membrane in the cap; the cap is then assembled into the sensor body in such manner as to bring the electrolyte into contact with the cathode tip, and into a predetermined volume space adjacent the tip for current carrying purposes.

3,758,399
PULSE IMPARTER
Paul E. Pendergrass, Billings, Mont., assignor to Tri-Tron International, Billings, Mont.
Filed Feb. 9, 1970, Ser. No. 9,743
Int. Cl. B01k *3/00*; C22d *1/02*
U.S. Cl. 204—228 **2 Claims**



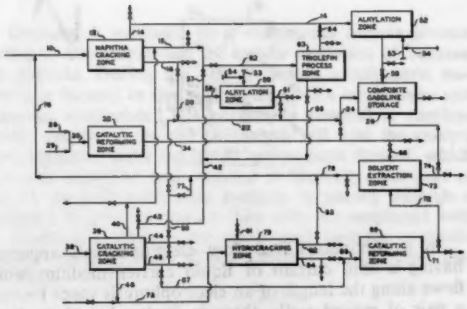
An apparatus for imparting an electrical pulse to a flowing stream of water having an inlet and outlet, a cathode within said housing in the path of said stream and an electric pulse generating means connected to said cathode.

3,758,400
CATALYTIC CRACKING PROCESS
Joe B. Hampton, Sweeny, Tex., assignor to Phillips Petroleum Company
Filed Aug. 2, 1971, Ser. No. 167,921
Int. Cl. C10g *31/14, 37/04*
U.S. Cl. 208—72 **6 Claims**



Cracking of hydrocarbon oils in fluid catalytic cracking units in the presence of a small, but finite, amount of an aromatic concentrate containing olefinic hydrocarbons results in a substantial increase in the production of higher quality products, especially gasoline products of an increased octane number.

3,758,401
PRODUCTION OF MOTOR FUELS
Ronald E. Bridgeford, Greenville, S.C., and Vernon A. Cawi, Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed May 21, 1971, Ser. No. 145,847
Int. Cl. C10g *37/04, 37/00*
U.S. Cl. 208—78 **25 Claims**



Composite motor fuels or gasoline, suitable for use as a lead-free or low-lead-content fuel, are provided by various combinations of steps comprising, in different embodiments, various novel combinations of steps comprising catalytic cracking, catalytic reforming, and solvent extraction. In some embodiments, the combination(s) include one or more additional steps such as hydrocracking, alkylation, and disproportionation.

3,758,402
CATALYTIC HYDROCRACKING OF HYDROCARBONS

Stephen M. Oleck, Moorestown, N.J., Albert B. Schwartz, Philadelphia, Pa., and William A. Stover, Woodbury, N.J., assignors to Mobil Oil Corporation

No Drawing. Filed Oct. 6, 1970, Ser. No. 78,572
Int. Cl. C10g *11/02, 11/04*
U.S. Cl. 208—111 14 Claims

Hydrocarbons are hydrocracked to products boiling in the motor fuel range by using a catalyst mixture comprising hydrogenation components, a large pore size zeolite such as zeolite X or Y and a smaller pore size zeolite of the ZSM–5 type. In a preferred embodiment, a siliceous matrix material is also used. The use of the ZSM–5 type zeolite results in obtaining a fuel having an increased octane number.

3,758,403
CATALYTIC CRACKING OF HYDROCARBONS WITH MIXTURE OF ZSM–5 AND OTHER ZEOLITES

Edward J. Rosinski, Deptford, and Charles J. Plank, Woodbury, N.J., and Albert B. Schwartz, Philadelphia, Pa., assignors to Mobil Oil Company

No Drawing. Filed Oct. 6, 1970, Ser. No. 78,573
Int. Cl. C10g *13/02*
U.S. Cl. 208—120 12 Claims

Hydrocarbons are cracked to products boiling in the motor fuel range by using a catalyst mixture comprising a large pore size zeolite such as zeolite Y and a smaller pore size zeolite of the ZSM–5 type. In a preferred embodiment, a siliceous matrix material is also used. The use of the ZSM–5 type zeolite results in obtaining a fuel having an increased octane number and in increased yields of C_3 and C_4 olefins. These olefins can be utilized in making additional gasoline or they can be used to prepare chemicals in accordance with conventional technology.

3,758,404
LIQUID-LIQUID MASS TRANSFER PROCESS AND APPARATUS

Kenyon E. Clonts, Houston, Tex., assignor to Merichem Company, Houston, Tex.

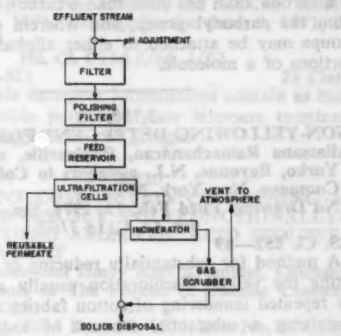
Filed July 9, 1971, Ser. No. 161,068
Int. Cl. C10g *17/00*
U.S. Cl. 208—263 4 Claims

A component of at least one of two immiscible liquids is transferred into the other liquid by introducing one of the liquids (the "first liquid") onto the surface of fibers extending generally linearly along a conduit with the fibers filling the cross-sectional area of at least a portion of the length of the conduit and being wetted preferentially by the first liquid, flowing the other liquid (the "second liquid") through the conduit past the fibers thereby dragging a film of the first liquid along the fibers, collecting the liquids in a gravity separator approximate the downstream end of the fibers and then separately removing the two liquids from the separator.

3,758,405
COLOR REMOVAL FROM KRAFT MILL AQUEOUS EFFLUENTS

Henry A. Fremont, Hamilton, Ohio, assignor to U.S. Plywood-Champion Papers, Inc.

Filed Nov. 3, 1971, Ser. No. 195,383
Int. Cl. C02c *5/06*
U.S. Cl. 210—23 10 Claims



This invention relates to an apparatus system and a continuous method of removing and disposing of color bodies in aqueous effluents from Kraft pulp manufacturing operations containing such bodies comprising adjusting the pH of said effluents to from about neutrality to about 9, subjecting the effluent to ultrafiltration to form an aqueous permeate and a retentate containing substantially all the color bodies in said effluent in a solids concentration of at least about 15%, and thermally oxidizing the retentate at a temperature and for a time sufficient to oxidize the color bodies to colorless inorganic salts and colorless inorganic gases which can be safely disposed of.

3,758,406
METHODS AND COMPOSITIONS FOR REDUCING FRICTIONAL PRESSURE LOSS IN THE FLOW OF HYDROCARBON LIQUIDS

William T. Malone, Marlin D. Holtmyer, John M. Tinsley, and Jiten Chatterji, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

No Drawing. Continuation-in-part of abandoned application Ser. No. 878,578, Nov. 20, 1969. This application Oct. 22, 1971, Ser. No. 191,847
Int. Cl. C08f *3/66;* E21b *43/26;* F17d *1/16*
U.S. Cl. 252—8.55 R 15 Claims

The present invention relates to methods and compositions for reducing the frictional pressure loss encountered in the turbulent flow of hydrocarbon liquids through a conduit. By the present invention a frictional pressure loss additive is intermixed with the hydrocarbon liquid, the additive being a homopolymer or a copolymer of alkyl acrylate and methacrylate monomers having ester groups containing from 4 to 18 carbon atoms or copolymers of such monomers and certain styrene, acrylate or methacrylate type monomers.

3,758,407
LITHIUM SOAP GREASE CONTAINING MONOLITHIUM BORATE

Gary L. Harting, Westfield, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,140
Int. Cl. C10m *5/14*
U.S. Cl. 252—18 6 Claims

A grease composition that combines good water resistance, good mechanical stability and high oil retention

with excellent oxidation stability and high dropping point is prepared by the use of a novel thickener system whose essential components include a combination of the monolithium salt of boric acid; and a lithium soap of a 9-, 10-, or 12-hydroxy C_{12} to C_{24} fatty acid, e.g., lithium 12-hydroxystearate. Further improvement in this type of grease results when a third thickener component is included, this being a lithium salt formed in situ in the grease from a second hydroxy carboxylic acid of from 3 to 14 carbon atoms wherein the OH group is attached to a carbon atom not more than 6 carbon atoms removed from the carboxyl group, and wherein either of those groups may be attached to either aliphatic or aromatic portions of a molecule.

3,758,408

NON-YELLOWING DETERGENT FORMULATION

Pallassana Ramachandran, Robinsville, and Joseph A. Yurko, Bayonne, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Feb. 12, 1971, Ser. No. 115,106

Int. Cl. C11d *3/02*

U.S. Cl. 252—89 **4 Claims**

A method for substantially reducing or entirely eliminating the yellow discoloration usually associated with the repeated laundering of cotton fabrics with detergents containing a substantial amount of sodium carbonate builder is disclosed. The new method includes the incorporation of titanium dioxide into the carbonate containing detergent system in an approximate weight ratio of 1:4 with the sodium carbonate builder.

3,758,409

CLEANING AND BLEACHING LIQUID COMPOSITION

Yunosuke Nakagawa, Koshigaya, and Ichiro Iwasa and Ikuya Kinoshita, Wakayama, Japan, assignors to Kao Soap, Ltd., Tokyo, Japan

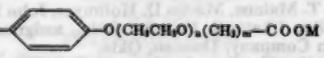
No Drawing. Filed Dec. 2, 1971, Ser. No. 204,344

Claims priority, application Japan, Dec. 9, 1970, 45/109,106

Int. Cl. C11d *7/54, 7/56*

U.S. Cl. 252—99 **3 Claims**

A transparent liquid detergent composition, excellent in bleaching and cleaning properties, consisting essentially of a surface active agent represented by a general formula,



(wherein R stands for an alkyl group having 8 to 22 carbon atoms, n is an integer of 1 to 40, m is an integer of 1 or 2 and M is an alkali metal), an alkali metal hypochlorite and an alkali agent dissolved in water, said alkali metal hypochlorite containing less than $\frac{1}{10}$ mol of alkali metal chloride per mol of the hypochlorite and the available chlorine content of the composition being 0.5–13% by weight.

3,758,410

VICINAL SUBSTITUTED ALKANES

Shih K. Liu, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of applications Ser. No. 710,644, Mar. 5, 1968, and Ser. No. 852,898, Aug. 25, 1969, both now abandoned. This application Apr. 21, 1971, Ser. No. 136,249

Int. Cl. C11d *3/075*

U.S. Cl. 252—89 **7 Claims**

Mixtures of internal position isomers of vicinally disubstituted linear alkanes wherein the alkyl chain contains from 15 to 17 carbon atoms and the substituents are hydroxy or alkoxy groups, at least one of the substituents being alkoxy groups, are effective surfactants.

3,758,411

AEROSOL COMPOSITION COMPATIBLE WITH EXCESS PROPELLANT

Denis John Healy, 1205 Broodmeadow Road, Winnetka, Ill. 60093

No Drawing. Continuation-in-part of application Ser. No. 726,197, May 2, 1968, which is a continuation-in-part of application Ser. No. 468,588, June 30, 1965, both now abandoned. This application Oct. 21, 1971, Ser. No. 191,541

Int. Cl. C11d *17/04*

U.S. Cl. 252—90 **6 Claims**

An aerosol composition containing as essential ingredients a propellant, an aqueous soap solution and a fatty acid ester amide of the following structural formula:

$$RCONHCH_2CH_2OOCR_1$$

wherein R and R_1 independently represent alkyl containing from 12 to 20 carbon atoms.

3,758,412

METHOD OF SCINTILLATION COUNTING USING TRIARYLBORANES AS SCINTILLATORS

Frank Grum, Edwin Paul Przybylowicz, Lorenzo Federico Costa, and Raymond Sumner Miller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 27, 1970, Ser. No. 58,681

Int. Cl. F21k *2/02*; C09k *1/00*; G01t *1/20*

U.S. Cl. 252—301.2 R **10 Claims**

Highly stable, highly fluorescent triarylboranes are employed in a scintillator solution as a primary or secondary scintillator solute.

ERRATUM

For Class 252—301.40 R see:
Patent No. 3,758,486

3,758,413

TERBIUM ACTIVATED YTTRIUM SILICATE PHOSPHORS

Thomas E. Peters, Levittown, N.Y., assignor to GTE Laboratories Incorporated

No Drawing. Continuation-in-part of abandoned application Ser. No. 640,354, May 22, 1967. This application Feb. 4, 1970, Ser. No. 8,718

Int. Cl. C09k *1/54*

U.S. Cl. 252—301.4 F **4 Claims**

Terbium activated yttrium silicate phosphors which emit green light when excited by ultraviolet, cathode ray or X-ray radiation. The phosphors may be used in fluorescent lamps and in cathodoluminescent screens for cathode-ray tubes.

3,758,414

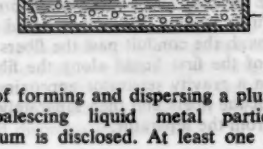
METHOD OF FORMING AND DISPERSING A PLURALITY OF DISCRETE, NON-COALESCING LIQUID METAL PARTICLES IN AN AQUEOUS MEDIUM

John Thomas Kenney, Lawrence Township, Mercer County, and Frederic Alan Litt, Cranford Township, Union County, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 19, 1971, Ser. No. 173,042

Int. Cl. B01j *13/00*; C23c *5/00*

U.S. Cl. 252—313 R **5 Claims**



A method of forming and dispersing a plurality of discrete, non-coalescing liquid metal particles in an aqueous medium is disclosed. At least one liquid metal

source is combined with a stable aqueous colloidal solution, formed by a controlled hydrolysis and nucleation reaction and comprising insoluble hydrous oxide particles of one or more selected elements, such solutions being exemplified in application Ser. No. 8,022, filed Feb. 2, 1970, now U.S. Pat. No. 3,657,003. The combined source and colloidal solution are then subjected to a dispersive force to (1) fractionate the metal source to form the plurality of liquid metal particles, and (2) disperse the non-coalescing particles within the colloidal solution. Where the liquid metal source is initially fractionated in a suitable manner, the dispersive force then merely disperses the non-coalescing particles.

3,758,415

METHOD FOR THE EXPANSION OF VERMICULITE

Takeo Wada, Osaka, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed July 13, 1971, Ser. No. 162,256
Claims priority, application Japan, July 14, 1970, 45/61,560
Int. Cl. B01j *1/10;* **C04b** *31/26*
U.S. Cl. 252—378 R **18 Claims**

Method of expanding vermiculite by irradiating it with microwaves.

3,758,416

PROCESS FOR PRODUCING CATALYSTS FOR DIMERIZATION OF PROPYLENE

Lucio Forni, Milan, Italy, assignor to Societa Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Nov. 19, 1971, Ser. No. 200,508
Claims priority, application Italy, Nov. 26, 1970, 32,210/70
Int. Cl. B01j
U.S. Cl. 252—447 **7 Claims**

Catalysts for the production of 4-methyl-1-pentene are made by treating graphite with alkaline solutions and subsequently heating to an elevated tempertaure in nitrogen or other inert gas before adding an alkali metal, preferably potassium.

ERRATUM

For Class 252—455 Z see:
Patent No. 3,758,539

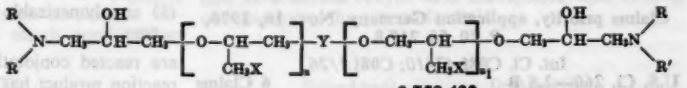
3,758,417

COPPER, ZINC, DIDYMIUM OXIDE-CONTAINING CATALYSTS

Eugene F. Magoon, Walnut Creek, and Lynn H. Slaugh, Lafayette, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 86,357, Nov. 2, 1970. This application May 21, 1971, Ser. No. 145,946
Int. Cl. B01j *11/06, 11/22*
U.S. Cl. 252—462 **5 Claims**

Methanol is produced by reaction of carbon oxides and hydrogen in the presence of a novel copper-zinc-didymium containing oxide catalyst.



3,758,418

PROCESS FOR PREPARING A SUPPORTED CATALYST

William J. Leonard, Jr., San Francisco, and Howard V. Holler, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 22, 1971, Ser. No. 126,983
Int. Cl. B01j *11/08, 11/22*
U.S. Cl. 252—464 **7 Claims**

Supported catalysts are prepared by coating a support with polymerized ethylenically unsaturated carboxylic acid, contacting the coated support with ions of catalytically active metals and then heating to 100–450° C. to decarboxylate the polymerized acid and convert the metal ions into discrete less than 1000 A. particles of metal or metal oxide. Silver catalysts active and selective for ethylene oxide production are prepared by this process.

3,758,419

CLEANSING AND LAUNDERING COMPOSITIONS

James W. Hayden, Richmond, Roy T. Holm, Orinda, and Rupert C. Morris, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 138,376, Ser. No. 138,377, and Ser. No. 138,378, all Apr. 28, 1971. This application June 3, 1971, Ser. No. 149,799
Int. Cl. C11d *1/08, 1/22*
U.S. Cl. 252—551 **28 Claims**

Biodegradable detergent formulations contain as builders water soluble polycarboxylate telomers terminated with certain oxygenated end groups.

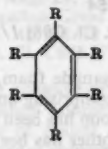
3,758,420

DETERGENT COMPOSITION CONTAINING A HOMOGENEOUSLY POLYFUNCTIONALLY-SUBSTITUTED AROMATIC ACID SEQUESTERING AGENT

Daniel S. Connor and Harry Karl Krummel, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,158
Int. Cl. C11d *1/14, 1/22*
U.S. Cl. 252—550 **2 Claims**

A detergent composition is provided comprising a water-soluble organic synthetic detergent, and as a detergency aid, a sequestering agent which is a water-soluble salt of a homogeneously polyfunctionally-substituted aromatic acid compound having the formula



wherein at least three R's represent SO_3H substituents.

3,758,421

EMULSIFYING CURING AGENTS FOR WATER DILUTABLE EPOXY RESIN SYSTEMS

Otho Leroy Nikles, Jr., Toms River, N.J., assignor to Resyn Corporation, Linden, N.J.

No Drawing. Continuation-in-part of application Ser. No. 873,501, Nov. 3, 1969. This application July 7, 1970, Ser. No. 53,010
Int. Cl. C08g *30/14*
U.S. Cl. 260—2 N **8 Claims**

This invention relates to emulsifying curing agents for preparing water dilutable epoxy resin systems and to the preparation of these products and their use with epoxy resins. The novel curing agents are represented by the following formula

3,758,422

OXYALKYLATED DERIVATIVES OF PHENOLPHTHALEIN

Bruce N. Wilson, Heath, Ohio, and Raymond R. Hindersinn, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 694,037, Dec. 28, 1967. This application Apr. 12, 1971, Ser. No. 133,449
Int. Cl. C08g *23/10*
U.S. Cl. 260—47 EQ **7 Claims**

Novel derivatives of phenolphthalein are prepared by reacting the compound with ammonia or an amine, and

with ammonia or an amine, followed by a 1,2-epoxide. Such polyhydric derivatives of phenolphthalein are useful in the preparation of polyurethane compositions such as foams, coatings and elastomers, for the production of saturated alkyd resins, unsaturated polyesters, and as intermediates in the preparation of other polymer compositions.

3,758,423

POLYMER AND PROCESS FOR PRODUCING SAME FROM AN EPOXY MONOMER AND A SILICON CONTAINING COREACTANT

Lynn J. Taylor, Haslett, Mich., assignor to Owens-Illinois, Inc.

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,253
Int. Cl. C08g *30/10*
U.S. Cl. 260—2 EC 7 Claims

There is disclosed the preparation of novel polymeric compounds by the reaction of at least one epoxy monomer and at least one silicon containing coreactant, each reactant having a functionality of at least two. The resulting material is highly suitable for adhesive, coating, and like purposes.

3,758,424

FOAMED POLYMERIC MATERIALS

Norman Stewart Anderson, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 94,563, Dec. 2, 1970. This application May 5, 1972, Ser. No. 250,654
Int. Cl. C08j *1/18*
U.S. Cl. 260—2.5 N 9 Claims

Manufacture of polyamide foam, by mixing polyamide with a blowing agent comprising an oxalic acid derivative wherein one COOH group has been esterified with an alcohol or polyol and the other has been either esterified with an alcohol, polyol or phenol or converted to a substituted amide, and heating above the melting point. Esterification products of oxalic acid with polyols, especially ethylene glycol, are preferred.

3,758,425

PROCESS FOR THE PREPARATION OF FOAMABLE STYRENE POLYMERS

Horst Jastrow, Niederhochstadt, Michael Lederer, Falkenstein, Taunus, and Elmar Heiskel, Langen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Nov. 15, 1971, Ser. No. 198,943
Claims priority, application Germany, Nov. 16, 1970, P 20 56 217.8
Int. Cl. C08f *47/10*; C08j *1/26*
U.S. Cl. 260—2.5 B 6 Claims

A process for preparing foamable styrene polymer beads containing blowing agents with a particularly favourable, narrow grain size distribution. This novel process comprises the use of copolymers of N-vinyl-N-alkyl acetamide having from 1 to 4 carbon atoms in the alkyl group with an ester of acrylic, methacrylic, maleic or fumaric acid with an aliphatic alcohol having a linear or branched chain and containing from 6 to 18 carbon atoms, as protective colloid in the homo- or copolymerization of styrene in an aqueous suspension in the presence of a blowing agent.

3,758,426

HYDROXY-TERMINATED POLYBUTADIENES

Jean L. Bolvin, Ottawa, Ontario, and Meude Tremblay, Quebec, Quebec, Canada, assignors to Her Majesty the Queen in right of Canada as represented by the Minister of National Defense

Filed Sept. 29, 1971, Ser. No. 184,757
Int. Cl. C08d *5/02*; C08f *19/14*; C08g *45/04*
U.S. Cl. 260—18 TN 10 Claims

A hydroxy-terminated polybutadiene is formed by reaction with a carboxy-terminated polybutadiene and an alkylene oxide. The hydroxy polymer has application for use as a binder for solid propellants when cured with a triisocyanate or a diisocyanate and a tris (hydroxy-terminated) polyhydrocarbon.

3,758,427

PROCESS FOR THE MANUFACTURE OF EPOXY-MODIFIED POLYURETHANE RESINS WHICH CAN BE DILUTED WITH WATER OR DISPERSED IN WATER

Themistoklis Katsibas, Hamburg, Germany, assignor to Reichhold-Albert-Chemie Aktiengesellschaft, Hamburg, Germany

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,921
Claims priority, application Switzerland, Dec. 8, 1969, 18,225/69
Int. Cl. C08g *5/20*
U.S. Cl. 260—19 EP 3 Claims

The subject of the invention is a process for the manufacture of oxidatively drying, epoxy-modified polyurethanes or polyurethane copolymers resins, which can be diluted with water or dispersed in water, characterized in that:

(I)

(a) unsaturated fatty acids, of which 0 to 25 percent by weight can be present as drying oils, with the unsaturated fatty acids and/or the drying oils optionally containing up to 6 percent by weight of maleic anhydride as an adduct, and with the mixture possessing iodine numbers of about 130 to 390,
(b) aliphatic, cycloaliphatic or aromatic carboxylic acids or hydroxy-carboxylic acids, individually or as a mixture, or their anhydrides, where these exist,
(c) monohydric and/or polyhydric hydroxy compounds,
(d) polyoxyalkylene compounds which contain at least one atom of active hydrogen and have an average molecular weight of the polyoxyalkylene chain of about 200 to 50,000, individually or as a mixture,
(e) epoxide compounds which contain at least one epoxide group, individually or as a mixture, and
(f) copolymerizable monomers, individually or as a mixture,

are reacted conjointly or stepwise by heating until the reaction product has an acid number of zero to 300,

(II)

the resulting ester and/or ester-ether, carrying hydroxyl groups and if required carrying carboxyl groups, is reacted by warming with

(g) unsaturated monoalcohols and/or polyalcohols or their mixtures, and
(h) isocyanates, individually or as a mixture,

with the reaction of the component (I) with (g) and (h) taking place conjointly, or with (g) and (h) having be-

forehand been reacted to give an intermediate product; in all reactions the components (I) (optionally (g)) should be employed in such a way, through selection of the amounts, that the total hydroxyl group equivalent bears a ratio of 1.01 to 1.45 to the isocyanate equivalent,

(III)

(i) and that optionally, where the polyurethane resin contains carboxyl groups, this resin is converted, by the addition of alkali and/or strong bases, into the state where it can be dispersed in water or diluted with water.

3,758,428
ACRYLIC COATING COMPOSITIONS
William Connelly, Leonard Sydenham, and John Szilagyi, Toronto, Ontario, Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada
No Drawing. Continuation-in-part of application Ser. No. 52,064, July 2, 1970. This application Nov. 15, 1971, Ser. No. 198,945
Int. Cl. C08b *21/08*; C08f *29/38, 45/22*
U.S. Cl. 260—17 R 12 Claims

Coating compositions comprising an organic solvent and as the essential film-forming materials, (1) at least 40 parts by weight of acrylic polymeric material selected from (a) copolymers of essentially, at least 75 parts by weight of methyl methacrylate and from 0.5 to 25 parts by weight of glycidyl acrylate or methacrylate, the total parts of the copolymer ingredients being 100, esterified with an aromatic monocarboxylic acid, selected from the group consisting of toluic acid, cinnamic acid, benzoic acid and benzoic acids substituted with at least one polar group, e.g. amino-benzoic acids and (b) mixtures of said esterified copolymers with homo- or copolymers of methyl methacrylate; (2) up to 50 parts by weight of at least one compatible plasticiser; and (3) up to 35 parts by weight of cellulose acetate butyrate, the total parts by weight of film-forming materials being 100; the glycidyl acrylate or methacrylate moiety of any copolymer (a) prior to esterification thereof constituting from about 0.5% to about 25% by weight of ingredient (1) of the essential film-forming materials, and when the acrylic polymeric film-forming material is a mixture (b), said esterified copolymer (a) being present in an amount exceeding 200% by weight of any pigment present in the compositions.

3,758,429
ETHYLENE/VINYL CHLORIDE/N-METHYLOL ACRYLAMIDE
William F. Fallwell, Jr., St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Original application July 16, 1970, Ser. No. 55,613. Divided and this application Nov. 26, 1971, Ser. No. 202,681
Int. Cl. C08d *9/06*; C08f *15/40, 45/24*
U.S. Cl. 260—17.4 ST 4 Claims

Ethylene/vinyl chloride/N-methylol acrylamide terpolymer, aqueous dispersions and starch combinations thereof.

3,758,430
VINYL POLYMER PLASTISOL COMPOSITION
Joseph Winkler, Hazleton, Pa., assignor to Tenneco Chemicals, Inc., New York, N.Y.
No Drawing. Original application Oct. 31, 1967, Ser. No. 679,554. Divided and this application Feb. 25, 1971, Ser. No. 118,944
Int. Cl. C09j *3/26*
U.S. Cl. 260—27 R 4 Claims

A heat-sealable polyurethane foam formed by reaction between the foam-forming ingredients, in the presence of selected plastisols is described.

3,758,431
HOT MELT COMPOSITIONS
David D. Taft, 7233 Monardo Lane, Minneapolis, Minn. 55435, and Terry H. Shepler, 1900 Turquoise Trail, St. Paul, Minn. 55122
No Drawing. Filed June 3, 1971, Ser. No. 149,843
Int. Cl. C09j *3/26*
U.S. Cl. 260—27 11 Claims

Hot melt compositions containing copolymer of ethylene and vinyl acetate and/or alkyl acrylate wherein the alkyl group contains 1–18 carbon atoms; ester of rosin and polyhydric alcohol; and ester of polyhydric alcohol and dimer and/or trimer of fatty acid are particularly useful as carpet backing adhesives.

3,758,432
METHOD OF PRODUCING LATEX PAINT
Theodore R. Hopper, Severna Park, Md., assignor to FMC Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 12,453, Feb. 18, 1970. This application Nov. 26, 1971, Ser. No. 202,691
Int. Cl. C08f *45/44*; C09d *5/02*
U.S. Cl. 260—29.6 MN 2 Claims

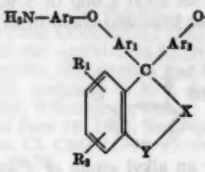
A method of producing pigmented latex paints in which the pigment is dispersed in water, together with, as an essential multifunctional ingredient, isooctyl carbamate, and the pigment dispersion is then added to the latex.

3,758,433
PRESSURE SENSITIVE ADHESIVES
James Nelson Mullen, Kilwinning, Scotland, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Aug. 25, 1971, Ser. No. 175,004
Claims priority, application Great Britain, Sept. 1, 1970, 41,734/70
Int. Cl. C08f *37/00*
U.S. Cl. 260—29.6 E 16 Claims

A pressure sensitive adhesive of particular use with regard to "wash-off" labels comprises a blend of a 1:1 alternating copolymer of maleic acid and methyl vinyl ether with an alkyl phenol polyethylene oxide condensate as plasticiser.

3,758,434
AROMATIC POLYIMIDES WITH INCREASED SOLUBILITY
Hans-Egon Kunzel, Dormagen, Francis Bentz, Cologne, and Gunther Nischk, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 25, 1971, Ser. No. 118,960
Claims priority, application Germany, Mar. 3, 1970, P 20 09 739.6
Int. Cl. C08g *20/32*
U.S. Cl. 260—30.2 10 Claims

New high molecular weight aromatic polyimides which are soluble in polar organic solvents. Obtained by reaction of a tetracarboxylic acid dianhydride with at least one diamine of the general formula



The polyimides are useful for the production of films, foils, fibers, coatings and moulded products.

3,758,435

RUBBER BONDING CEMENT FOR BONDING EPDM TO GENERAL PURPOSE RUBBER

Charles F. Paddock, Wayne, N.J., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Original application May 13, 1970, Ser. No. 37,030, now Patent No. 3,653,423. Divided and this application Jan. 12, 1972, Ser. No. 217,269

Int. Cl. B32b *25/04*; C08k *1/22*

U.S. Cl. 260—33.6 A 6 Claims

A rubber bonding cement which comprises a solution of a compounded graft copolymer in a volatile organic solvent, said graft copolymer having an ethylene-propylene-ethylidene norbornene spine to which butadiene and styrene have been grafted, said spine comprising 55 to 95% by weight of the graft copolymer.

3,758,436

CROSS-LINKED POLY (ARYLSULPHONE ETHERS)

Michael Edward Benet Jones, 45 Richmond Crescent, Vicars Cross, Chester, England, and Brian Edmund Jennings, Cherry Way, 40 Harmer Green Lane, Digswell, Welwyn, Hertfordshire, England

No Drawing. Application Feb. 22, 1971, Ser. No. 117,807, which is a division of application Ser. No. 12,141, Feb. 17, 1970, now Patent No. 3,579,475, which in turn is a continuation of abandoned application Ser. No. 755,491, Aug. 7, 1968. Divided and this application Feb. 29, 1972, Ser. No. 230,481

Claims priority, application Great Britain, Mar. 8, 1964, 11,428/64

Int. Cl. C08g *51/10*

U.S. Cl. 260—37 R 5 Claims

A cross-linkable composition which comprises a thermoplastic polymer containing aromatic residues in the polymer chain, the polymer itself containing per chain at least two groups of the formula $—SO_2X$ each attached directly to an aromatic carbon atom, X being, for example, chlorine or bromine.

3,758,437

NORMALLY SOLID CRYSTALLINE POLYPROPYLENE STABILIZED BY AROMATIC ESTERS OF ANTHRANILIC ACID

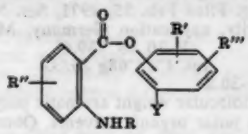
John Howard Adams, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 102,968, Dec. 30, 1970. This application Feb. 18, 1972, Ser. No. 227,609

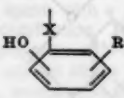
Int. Cl. C08f *45/60*

U.S. Cl. 260—45.85 A 3 Claims

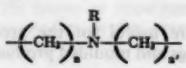
Normally solid crystalline polypropylene is stabilized by esters of anthranilic acid of the formula:



in which R is H or an alkyl group of 1 to 4 carbon atoms, R′ and R″ and H, NO_2, alkyl groups of 1 to 20 carbon atoms, halogens, and alkoxyl groups of 1 to 20 carbon atoms, R‴ is an alkyl group of 5 to 20 carbon atoms either straight or branched chain in structure, and Y has the structure:



wherein R⁗ is H or an alkyl group of 1 to 20 carbon atoms, X is $—(S)_n$, or



where *n* has a value from 1 to 5, said ester of anthranilic acid being present in an amount sufficient to enhance the stability of said composition against UV and heat degradation.

3,758,438

PROCESS FOR THE MANUFACTURE OF FILAMENTS AND FIBERS HAVING A METALLIC GOLDEN SHADE FROM POLYESTERS

Gerhard Freitag, Niederhofheim, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 10, 1971, Ser. No. 206,940

Claims priority, application Germany, Dec. 12, 1970, P 20 61 354.1

Int. Cl. C08g *51/04*

U.S. Cl. 260—40 P 2 Claims

Filaments and fibers made from high molecular weight synthetic linear polyesters have a metallic golden aspect when these contain from 0.001 to 0.01% by weight of niobium based on incorporated niobium pentoxide. Such filaments and fibers are preferably obtained by adding niobium pentoxide hydrate having a determined water content during the normal polyester preparation process in an amount which yields a niobium content of from 0.001 to 0.01% by weight in the polyester end product, and by subsequently processing the polyester so obtained by melt spinning. Especially monofilaments having a golden shade are used as fastening links of zippers.

3,758,439

THERMOSETTING COMPOSITIONS CONTAINING MONOMERIC HYDROXYALKYL ACRYLIC ESTER AND POLYMER OF ACRYLONITRILE

Lawrence M. Fodor, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Apr. 23, 1971, Ser. No. 137,017

Int. Cl. C08f *15/00*

U.S. Cl. 260—41 R 22 Claims

Thermosetting compositions comprising a polymer of acrylonitrile and a hydroxyalkyl ester of an unsaturated acid are readily converted to novel thermoset resins at elevated temperatures and pressures in the presence of free radical initiators.

3,758,440

SULFUR-CONTAINING POLYARYL POLYPHENOLIC STABILIZERS FOR ELASTOMERIC POLYMERS

Howard A. Hageman, Southbury, Conn., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Original application Mar. 17, 1969, Ser. No. 807,956, now Patent No. 3,668,258, dated June 6, 1972. Divided and this application Sept. 9, 1971, Ser. No. 179,232

Int. Cl. C08c *27/66*; C08d *11/04*; C08f *45/58*

U.S. Cl. 260—45.95 C 7 Claims

The compounds are of the class of thiobis(beta-arylalkylene)diphenols and chain-extended polythiopolyphenols derived therefrom. They are useful as antioxidants in compositions containing unsaturated rubbers—that is, so-called diene rubbers. A typical compound of the class is 4,4′-thiobis(beta-phenylethylene)diphenol, made by condensing bis(beta-chlorophenethyl) sulfide (one mole) with phenol (two moles). Chain extension is apt to occur by reaction of the first-formed mono-thio diphenol with additional amounts of the dichloro coupling agent and

the starting phenol, forming polythio polyphenolic compounds having repeated alternating units of the coupler and the phenol moieties.

3,758,441

ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER STOCKS

Siegfried Nitzsche, Wolfgang Kaiser, Ernst Wohlfarth, and Paul Hittmair, Burghausen, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany

No Drawing. Continuation-in-part of application Ser. No. 63,608, Aug. 13, 1970, now Patent No. 3,674,738. This application Feb. 24, 1972, Ser. No. 229,187

Int. Cl. C08f *11/04*

U.S. Cl. 260—46.5 G 6 Claims

A room-temperature vulcanizable silicone rubber stock is prepared by admixing an essentially linear diorganopolysiloxane having reactive end groups, preferably hydroxyl end groups, and as a crosslinker a mixture of an aminosilane and an oxime substituted silane. These materials can be stored in the absence of moisture and will cure to form elastomeric products upon exposure to moisture.

3,758,442

NOVEL POLYETHERESTERS OF HYDROXYALKOXYL DIPHENYL-4-CARBOXYLIC ACID PROCESS FOR PREPARATION THEREOF, AND ARTICLES THEREOF

Takeo Shima, Selichi Yamashiro, and Hiroo Inata, Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

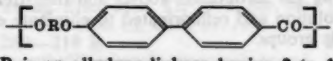
No Drawing. Filed Feb. 5, 1971, Ser. No. 113,084

Claims priority, application Japan, Feb. 9, 1970, 45/11,654; July 2, 1970, 45/57,873; July 31, 1970, 45/67,194

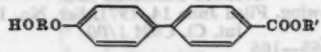
Int. Cl. C08g *17/02*

U.S. Cl. 260—47 C 11 Claims

A novel linear polyetherester containing at least 70 mole percent recurring units expressed by the following formula



wherein R is an alkylene linkage having 2 to 10 carbon atoms, is produced by polycondensing a member selected from the group consisting of 4'-(ω-hydroxyalkoxy)diphenyl-4-carboxylic acid or its ester-forming derivatives of the formula



and mixtures of 4'-(ω-hydroxyalkoxy)diphenyl-4-carboxylic acid or its ester-forming derivatives with less than 30 mole percent of a copolymerizable third component such as a diol ester of an aromatic carboxylic acid, a diol ester of an aliphatic carboxylic acid, a diol ester of an alicyclic dicarboxylic acid, an aromatic hydroxycarboxylic acid, a polyethylene glycol, a trifunctional or tetrafunctional ester-forming compound, or a nuclear hydrogenated product of 4'-hydroxy-diphenyl-4-carboxylic acid.

3,758,443

PROCESS FOR THE PRODUCTION OF POLYURETHANE ELASTOMERS BASED ON A PARTICULAR POLYOL POLYCARBONATE

Klaus Konig, Erwin Muller, and Cornelius Muhlhausen, Leverkusen, and Uwe Jens Dobereiner, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 98,928, Dec. 16, 1970. This application Apr. 24, 1972, Ser. No. 247,212

Int. Cl. C08g *22/10, 17/13*

U.S. Cl. 260—75 NP 5 Claims

A process is provided for the production of polyurethane elastomers by reacting higher molecular weight hydroxy compounds which have a molecular weight of 800 to 2500, diisocyanates and low molecular weight compounds which have a molecular weight of up to 400 and which contain at least two hydrogen atoms reactive with isocyanates, characterized in that the higher molecular weight hydroxy compounds are condensation products of 1,6-hexane diol, adipic acid and diaryl carbonate.

3,758,444

POLYURETHANES BASED ON ACTIVATED-LACTAM CROSS-LINKERS

Kuno Wagner, Leverkusen, Gerhard Mennicken, Opladen, and Klaus Noll, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

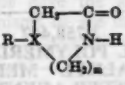
No Drawing. Filed Apr. 5, 1972, Ser. No. 241,396

Claims priority, application Germany, Apr. 10, 1971, P 21 17 576.8

Int. Cl. C08g *22/16*

U.S. Cl. 260—75 NH 10 Claims

Linear thermoplastic polyaddition products which are soluble in organic solvents are provided and a process for their preparation in which (1) diisocyanates are reacted with (2) compounds having a molecular weight of 400 to about 8000 and two terminal hydroxy groups and (3) the reaction product of (A) water and/or diols having a molecular weight below about 400 and/or diamines having a molecular weight below about 400 and/or hydrazines having a molecular weight below about 400 and (B) a lactam having the formula



wherein X is CH or nitrogen with the proviso that when X is CH, R is hydrogen and *m* is an integer of from 0 to 9 and when X is nitrogen, R is an aliphatic radical, an araliphatic radical or a pyridine radical which may also be substituted with a lower alkyl radical and *m* is 3; the molar ratio of chain lengthening agent (A) and lactam (B) being from about 0.1:1 to about 10:1. The products are eminently suitable for coatings, lacquers and impregnations.

3,758,445

NOVEL POLYMERS AND PHOTOGRAPHIC ELEMENTS CONTAINING SAME

Hyman L. Cohen, James R. King, Jr., and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 709,812, Mar. 1, 1968. This application Dec. 21, 1970, Ser. No. 100,487

Int. Cl. C08f *27/08*

U.S. Cl. 260—78 SC 24 Claims

Polymers comprising quaternary nitrogen atoms and at least two aromatic nuclei in the polymer cation for each quaternary nitrogen atom are described. In one embodiment at least ⅓ of the units of said polymer comprise quaternary nitrogen atoms. In another embodiment polymers comprising at least two aromatic nuclei in the polymer cation, such as aryl groups, for each quaternary nitrogen atom can be used in photographic elements to provide excellent mordants for dyes.

3,758,446

PROCESS FOR CONTROLLING MOLECULAR WEIGHT OF ALPHA-OLEFIN POLYMERS

Joseph F. Coughlin, Wilmington, and Richard J. Ruszkay, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

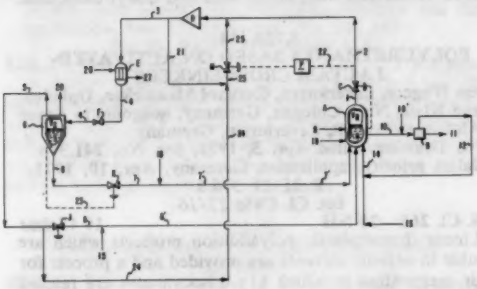
Filed June 10, 1971, Ser. No. 151,649

Int. Cl. C08f *15/40, 15/04, 3/02*

U.S. Cl. 260—80.78 11 Claims

In a continuous process for polymerizing at least one gaseous C_2–C_7 alpha-olefin with a coordination catalyst in the presence of molecular hydrogen as a molecular weight regulator in a reactor containing a liquid and a

gaseous phase, the improvement consisting essentially of compressing and partially condensing reactor off-gas, passing the resulting condensate and uncondensed gas to a reservoir from which both materials are recycled to the reactor, said reservoir containing sufficient condensate



and uncondensed gas such that molecular hydrogen is present in the reservoir in an amount of at least 10% of the weight of molecular hydrogen in the reactor, and regulating polymer molecular weight by controlling the fraction of off-gas condensed.

3,758,447

FREE RADICAL POLYMERIZATION USING PERFLUOROALKYL MERCAPTANS AS CHAIN TRANSFER AGENTS

Robert Allan Falk, New City, and Eduard Karl Kleiner, New York, N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 17, 1971, Ser. No. 199,791

Int. Cl. C08f *15/16*

U.S. Cl. 260—78.5 B **18 Claims**

Polymers having low free surface energies are derived from monomers which are capable of free radical polymerization and novel perfluoroalkyl mercaptans which act as chain transfer agents.

3,758,448

COPOLYMERS AND HYDROGELS OF UNSATURATED ESTERS

Paul Stamberger, Baltimore, Md., assignor to Union Optics Corporation, Verona, Pa.

No Drawing. Filed Oct. 5, 1971, Ser. No. 186,821

Int. Cl. C08f *15/16*

U.S. Cl. 260—86.1 E **4 Claims**

Bulk polymerized, water insoluble but water swellable polymer of monomers comprising water soluble monoester of acrylic or methacrylic acid with a polyhydric alcohol; and glycidyl methacrylate, and/or glycidyl acrylate, and/or glycidyl crotonate. The polymer may be swelled in aqueous solution to provide a transparent hydrogel having excellent physical properties, and suitable in an ophthalmic lens.

3,758,449

DRILLING FLUID STABILIZER

Lutz Hoppe, Walsrode, and Dieter Dobbertin, Fallingbostel, Germany, assignors to Wolff Walsrode Aktiengesellschaft, Walsrode, Germany

No Drawing. Filed June 29, 1971, Ser. No. 158,065

Claims priority, application Germany, June 29, 1970, P 20 31 972.6

Int. Cl. C08f *3/76, 15/38, 27/14*

U.S. Cl. 260—85.5 R **7 Claims**

A drilling fluid stabilizer comprising a hydrolysis product of polyacryonitrile with an amount of hydrolysed and nonhydrolysed nitrile groups, the hydrolysed nitrile groups consisting of carboxylic acid amide groups and ammonium carboxylate groups.

3,758,450

PROCESS FOR THE PRODUCTION OF HYDROLYTICALLY RESISTANT FLUOROCARBONS

John L. Margrave, Houston, Tex., and Richard J. Lagow, Cambridge, Mass., assignors to R. I. Patents, Inc., Houston, Tex.

Continuation-in-part of abandoned application Ser. No. 718,128, Apr. 2, 1968. This application Apr. 14, 1971, Ser. No. 133,865

Int. Cl. C08f *27/03*

U.S. Cl. 260—94.9 H **25 Claims**

A process for the treatment of fluorinated aliphatic and aromatic hydrocarbons, so as to produce hydrolytically resistant fluorocarbons which are color and thermally stable. The production of hydrolytically resistant fluorocarbons involves the elimination of easily hydrolyzable groups—fluorine atoms or CF_3 groups attached to tertiary carbon atoms. By treating fluorinated aliphatic and aromatic materials with a basic solution, preferably at a temperature above 50° C., these hydrolyzable groups are replaced by hydroxyl groups. After washing with water, the hydrolyzed materials are then placed in a reaction chamber and refluorinated to produce fluorocarbons without any hydroxyl groups or any easily hydrolyzable sites. In the refluorination of the hydrolyzed materials, fluorine gas or an inorganic fluoride gas is introduced into the atmosphere surrounding the hydrolyzed materials at a slow rate such that the initial concentration of the fluorinating gas is a mere trace and such concentration is less than 6% at the end of 30 minutes of fluorination. The introduction of the fluorinating gas is then continued at a slow rate to gradually increase the concentration thereof in said atmosphere until the concentration of the fluorinating gas is about 100%. The fluorination process is preferably conducted at atmospheric pressure and room temperature; however, higher temperatures up to the decomposition temperature of the material may be used. Aliphatic and aromatic compounds may also be initially fluorinated by the direct action of a fluorinating gas as outlined above, and then treated with a basic solution and refluorinated to eliminate easily hydrolyzable groups.

3,758,451

MAGNESIUM RESINATE OF DISPROPORTIONATED ROSIN

Henry P. Weymann, Pensacola, Fla., assignor to Tenneco Chemicals Inc.

No Drawing. Filed June 14, 1971, Ser. No. 153,110

Int. Cl. C09f *1/00*

U.S. Cl. 260—105 **4 Claims**

Disproportionated rosin having a Ball and Ring Softening Point below 60° C. is reacted with from 3 percent to 8 percent of its weight of a reactive magnesium compound in the presence of an acidic catalyst and a hydrocarbon solvent. The resulting magnesium resinates have high softening points and are compatible with a wide variety of elastomers.

3,758,452

DETOXIFICATION AND ISOLATION OF RAPESEED PROTEIN BY AQUEOUS SALINE EXTRACTION AND ISOELECTRIC PROTEIN PRECIPITATION

David F. Owen, 18657 San Fernando Mission Blvd., Northridge, Calif. 91324

No Drawing. Filed Dec. 1, 1971, Ser. No. 203,842

Int. Cl. A23j *1/14*

U.S. Cl. 260—123.5 **8 Claims**

A bland, non-toxic rapeseed protein isolate is produced by contacting rapeseed presscake with an aqueous saline extraction medium to extract rapeseed protein from the presscake, isoelectrically precipitating rapeseed protein from the extraction medium, washing the precipitated protein, and spray drying the protein. The spray dried rapeseed protein isolate has a high protein content, is sub-

stantially free of toxic material, and is suitable for use in food formulations intended for human consumption. The rapeseed presscake, after extraction, has a low level of toxic materials and is suitable for use as a feed supplement for animals.

3,758,453

STABLE FREE-RADICAL STRUCTURES PREPARED FROM SERUM ALBUMIN AND NITROSYL DISULFONATE

Byrel D. Polis, Wyndmoor, Pa., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Continuation-in-part of abandoned application Ser. No. 74,487, Sept. 22, 1970. This application Feb. 22, 1972, Ser. No. 228,286

Int. Cl. C07g *7/00*

U.S. Cl. 260—121 1 Claim

Subject disclosure relates to a stable free-radical product, its use to produce brain excitation in mammals when intravenously administered, and a method of preparing the free-radical product. The free-radical product is prepared from purified plasma proteins, pituitary peptides and other structures containing tyrosine or tryptophan by oxidation with a free-radical nitrosyl disulfonate product in alkaline solution under controlled conditions. Intravenous administration of the free-radical product into mammals causes a sudden electroencephalographic arousal accompanied by behavioral changes indicative of brain excitation. Illumination of the free-radical product by visible light prior to administration substantially enhances the arousal and brain excitation effects.

3,758,454

LINCOMYCIN-TYPE COMPOUNDS AND PROCESS FOR MAKING THEM

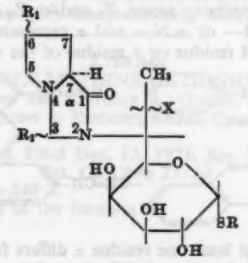
Alexander D. Argoudelis and Barney J. Magerlein, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Mar. 12, 1971, Ser. No. 123,891

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R 20 Claims

A 1′-demethyllincomycin-type compound is reacted with an aldehyde to form an antibacterially active alkyl 6 - deamino - 6-(tetrahydro-1-oxo-pyrrolo-imidazolyl)-α-thiolincosaminide of the formula



I

where R, R_1 and X are radicals of the 1′-demethyllincomycin-type compound and R_2 is the radical of the aldehyde.

3,758,455

MYCOPHENOLIC ACID GLUCURONIDE AND THE PROCESS FOR THE PREPARATION THEREOF

Masahiko Arita, Tokyo, Japan, assignor to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed May 4, 1971, Ser. No. 140,210

Claims priority, application Japan, May 14, 1970, 45/40,524

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R 2 Claims

A novel compound 6 - [4′-O-(β-D-glucopyranuronosido) - 6′ - methoxy - 7′ - methyl-3′-oxophthalanyl-(5′)]-4-methyl-4-hexenoic acid which may be referred to as mycophenolic acid glucuronide having improved antitumor activity against mouse myeloid leukemia X-5563 and chemotherapeutic index is disclosed. The compound is prepared by reacting a mycophenolic acid alkyl ester or a salt thereof with a lower-alkyl-(2,3,4-tri-O-acetyl-α-D-glucopyranosyl halide)-uronate followed by hydrolysis.

3,758,456

BETA-D-RIBOHEPTOFURANOSYL NUCLEOSIDES

Pieter C. Bax, Cupertino, and Margaret S. Henderson and David H. Rammler, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed July 16, 1971, Ser. No. 163,488

Int. Cl. C07d *51/52, 51/54*

U.S. Cl. 260—211.5 R 19 Claims

Novel β-D-riboheptofuranosyl nucleosides and methods of preparing such compounds. The compounds are generally prepared via a Wittig type reaction with the corresponding known 5′-aldehyde ribofuranosyl nucleoside, thereby yielding the corresponding 5′, 6′-dideoxy-β-D-ribo-hepto-5′-enofuranosyluronate ester nucleoside or 6′ - cyano - 5′,6′-dideoxy-β-D-ribo-hepto-5′-enofuranosyl nucleoside. Derivatives of this nucleosides are then prepared by a number of selective reactions described herein. The novel nucleosides have the ability to inhibit the growth of microorganisms or are intermediates for such compounds.

3,758,457

PROCESS FOR RECOVERING REGENERATED CELLULOSE

James Samuel Ten Broeck, Jr., Robert Bruce Perry, and Dale Roderic Laurance, Lawrence, Kans., and John Richard Fisher, Clinton, Iowa, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 25, 1972, Ser. No. 220,649

Int. Cl. B29h *19/00*

U.S. Cl. 260—212 14 Claims

An improved process for recovering regenerated cellulose from softened and coated regenerated cellulose. The process comprises: (a) comminuting the softened and coated regnerated cellulose to chips, (b) humidifying the chips by adding water to the chips wherein the water swells the chips, (c) extracting both water and softener from the chips by flushing with a softener extraction agent, (d) removing the coating from the chips by flushing the chips with a coating solvent, (e) slurrying the chips in water and coating solvent, (f) selectively drying the slurry to remove the coating solvent leaving recovered regenerated cellulose chips. These recovered chips can be used in various ways such as an ingredient used in the preparation of carboxymethylcellulose or recycled back through a process of making regenerated cellulose. The softener, softener extraction agent, coating and coating solvent are also recovered and reused.

3,758,458

LOW D.P. HIGH D.P. VISCOSE MIXTURE USING HIGH CELLULOSE CONCENTRATION

John Dyer, Glen Mills, Pa., assignor to FMC Corporation, Philadelphia, Pa.

No Drawing. Filed Dec. 8, 1971, Ser. No. 206,204

Int. Cl. C08b *9/00;* D01f *3/10*

U.S. Cl. 260—212 10 Claims

A mixture of viscose solutions suitable for preparing shaped regenerated cellulose articles wherein one viscose contains a medium to low cellulose content and the cellulose has a high molecular weight and the other viscose contains a large amount of cellulose which has a medium to low molecular weight, is disclosed herein.

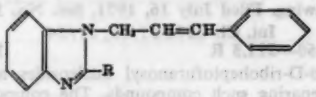
3,758,459

NOVEL DERIVATIVES OF 1-CINNAMYL BENZIMIDAZOLE, THEIR PROCESS OF PREPARATION AND THEIR THERAPEUTIC APPLICATION

Claude P. Fauran, Paris, Jeannine A. Eberle, Chatou, Guy M. Raynaud, Paris, and Yves J. Bailly, Nanterre, France, assignors to Delalande S.A., Courbevoie (Hauts-de-Seine), France

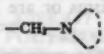
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,596
Claims priority, application France, Nov. 27, 1970, 7042636
Int. Cl. C07d 49/38
U.S. Cl. 260—240 K 9 Claims

A compound of the formula



wherein

R is alkyl or hydroxyalkyl having 1 to 3 carbon atoms, or phenyl substituted with at least one alkoxy or at least one halogen, or benzyl disubstituted on the benzene ring with halogen and alkoxy, or



in which

is dialkylamino in which the two alkyls are identical, or piperidino, morpholino or pyrrolidino

is prepared by reacting the corresponding 2-substituted benzimidazole with cinnamyl chloride. The compounds possess hypotensive, vasodilatric, respiratory analeptic, analgesic, antiinflammatory, spasmolytic and diuretic properties.

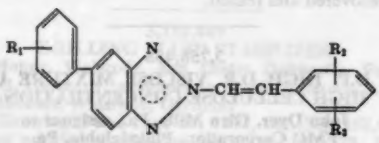
3,758,460

STYRYL COMPOUNDS

Josef Schroeder, Leverkusen, and Carl-Wolfgang Schellhammer, Opladen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 22, 1970, Ser. No. 83,241
Claims priority, application Germany, Nov. 3, 1969, P 19 55 068.6
Int. Cl. C07d 55/04
U.S. Cl. 260—240 D 6 Claims

2-styryl-compounds of the formula



in which R_1 denotes hydrogen, halogen, alkyl and alkoxy; and R_2 and R_3, independently of one another, stand for hydrogen, halogen, alkyl, alkoxy, aryl, aryloxy, aralkyl, aralkoxy, amino, acylamino, cyano, carboxy, alkoxycarbonyl, carbamoyl, sulpho, sulphamoyl, sulphonyl, or for optionally substituted pyrazole and triazole radicals, as well as their preparation and their use as optical brightening agents.

3,758,461

DYES AND PHOTOGRAPHIC MATERIALS

Arthur Fumia, Jr., Hilton, Leslie G. S. Brooker, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Application Mar. 25, 1970, Ser. No. 22,708, which is a continuation-in-part of application Ser. No. 860,395, Sept. 23, 1969, now abandoned. Divided and this application July 9, 1971, Ser. No. 161,333
Int. Cl. C09b 23/00
U.S. Cl. 260—240.1 5 Claims

Novel tricarbocyanine dyes are provided having a 1-piperazinyl group attached to the meso carbon atom of the methine linkage of the dye. Light sensitive silver halide grains are spectrally sensitized with the tricarbocyanine dyes of this invention.

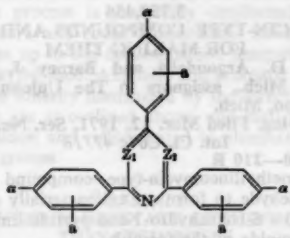
3,758,462

TRI-ARYL-AZINES AS FLUORESCENT WHITENING AGENTS

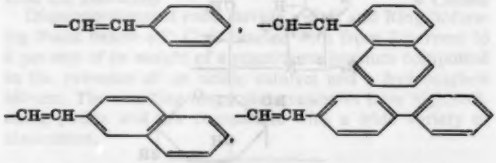
Adolf Emil Siegrist, Basel, Peter Liechti, Binningen, Erwin Maeder, Aesch, Basel-Land, Leonardo Guglielmetti, Birsfelden, and Hans Rudolf Meyer and Kurt Weber, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 588,318, Oct. 21, 1966. This application Aug. 28, 1970, Ser. No. 67,967
Claims priority, application Switzerland, Oct. 28, 1965, 14,902/65; July 4, 1966, 9,649/66
Int. Cl. C09b 23/00
U.S. Cl. 260—240 CA 8 Claims

The present invention relates to new compounds of the formula



in which a represents hydrogen, halogen, the methyl group or the methoxy group, Z_1 and/or Z_2 denotes a ring member =CH— or =N— and α represents a hydrogen atom, a phenyl residue or a residue of the series



in which (I) at least one residue α differs from hydrogen or phenyl and has the significance of one of the other residues quoted for α, and in which (II) terminal phenyl or naphthyl residues may contain alkyl, halogen or alkoxy groups. These new compounds represent valuable optical brightening agents.

3,758,463

DICHLOROISOCYANURATE MANUFACTURE

Sidney Berkowitz, Highland Park, N.J., and Milton A. Cohen, Nitro, and Paul R. Yochum, South Charleston, W. Va., assignors to FMC Corporation, New York, N.Y.

Filed Dec. 29, 1970, Ser. No. 102,351
Int. Cl. C07d 55/40
U.S. Cl. 260—248 C 7 Claims

A process is provided for producing salts of dichloroisocyanuric acid from cyanuric acid, including the im-

provement of recovering dissolved salt of dichloroisocyanuric acid from a process mother liquor by acidification. Dichloroisocyanuric acid is produced from cyanuric acid, chlorine and a suitable base. The dichloroisocyanuric acid is neutralized to the salt, which results in formation of a precipitate of the salt of dichlorocyanuric acid and in an aqueous mother liquor containing dissolved salt. Washing of the precipitated salt results in additional mother liquor containing dissolved salt. The mother liquor is acidified with a strong acid by the improved process of this invention and the dissolved salt is recovered as dichloroisocyanuric acid precipitate.

3,758,464

PROCESS FOR PREPARING A STABILIZED BIOCIDAL COMPOSITION

Hershel B. Prindle and Jack A. McElreath, Lake Jackson, and David R. Elliott, Freeport, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,901

Int. Cl. C07d *55/52*

U.S. Cl. 260—248.5 **9 Claims**

Adducts of certain unsaturated halides with hexamethylenetetramine are known to be effective germicides when present in concentrations as low as 0.01 percent in water-containing organic mixtures. However, under certain conditions the compounds may undergo detrimental spontaneous exothermic decomposition. A composition which is stable while packaged and/or during storage is realized by the process of the present invention which comprises blending with adduct, during adduct preparation, an additament which eliminates or suppresses any self-propagating exothermic decomposition of the adduct.

3,758,465

TRINUCLEAR COMPLEX MEROCYANINE DYES

Philip W. Jenkins, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application July 31, 1967, Ser. No. 657,082, now Patent No. 3,576,639, dated Apr. 27, 1971. Divided and this application June 1, 1970, Ser. No. 54,044

Int. Cl. C09b *23/10*

U.S. Cl. 260—240.1 **13 Claims**

Trinuclear complex merocyanine dyes derived from 2-imidazolin-4-ones, 2-imidazolin-4-thiones and 2-imidazolin-4-selenones are used advantageously as spectral sensitizing dyes in photographic image-forming materials.

3,758,466

PYRROLE METHINE CATIONIC DYES

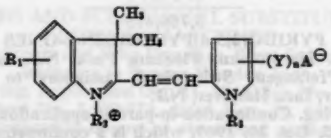
John G. Fisher and Clarence A. Coates, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,539

Int. Cl. C09b *23/10*

U.S. Cl. 260—240 E **8 Claims**

Compounds of the formula



wherein

R_1 represents hydrogen, halogen, lower alkyl, lower alkoxy, or alkoxycarbonyl;

R_2 represents lower alkyl, lower substituted alkyl, or aryl;

R_3 represents hydrogen, lower alkyl, lower substituted alkyl, or aryl;

Y represents hydrogen, alkyl, alkoxy or phenyl;

n is 1, 2 or 3; and

A is a basic dye anion.

These compounds are useful as dyes for acrylic, modacrylic and acid-modified polyester textile fibers, yarns and fabrics.

3,758,467

ANTHRAQUINONE DYESTUFFS

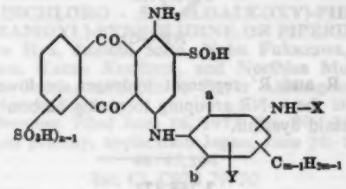
Karl Seltz, Oberwil, Basel-Land, Guenter Klahre, Reinach, Basel-land, and Hans-Ulrich Schuetz, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 825,079, May 15, 1969. This application Aug. 11, 1971, Ser. No. 178,527

Int. Cl. C07d *55/18*

U.S. Cl. 260—249 **12 Claims**

Anthraquinone dyestuffs which correspond to the general formula



in which *m* and *n* each represents an integer not greater than 2, *a* and *b* each represents a low-molecular alkyl residue, X represents a 4-halogeno-1,3,5-triazine residue bound at 6-position to the NH group through the ring carbon atom and which carries an etherified hydroxyl group at 2-position, and Y represents a sulphonic acid group, a low-molecular alkyl group or a hydrogen atom, are valuable dyestuffs of increased reactivity suitable for printing cotton and regenerated cellulose. The prints obtained with said dyestuffs are distinguished by their very good fastness to light and by their outstanding properties of wet fastness.

3,758,468

1-ALKYL-6-AZAURACIL COMPOUNDS AND PREPARATIONS

Jasper Daams and Johannes Kuipers, Weesp, and Christoffel Willem Pluijgers, Utrecht, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed June 17, 1970, Ser. No. 47,175

Claims priority, application Netherlands, June 18, 1969, 6909255

Int. Cl. C07d *55/10*

U.S. Cl. 260—248 AS **4 Claims**

It has been found that 1-alkyl-6-azauracil compounds in which the alkyl group contains from 1 to 12 carbon atoms have a strong growth-inhibiting effect in plants, in particular grasses. After being worked up into the usual preparations the compounds can be used for keeping short vegetation, in particular turf. The practical use on lawns has the further advantage that the quality of the turf is improved.

3,758,469

s-TRIAZINES

Julius Diamond, Lafayette Hill, Pa., assignor to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Filed Oct. 14, 1971, Ser. No. 189,405

Int. Cl. C07d *55/20*

U.S. Cl. 260—249.9 **50 Claims**

Novel 2-amino-4-anilino - 6 - substituted 1,3,5-triazines, processes for preparing the same and their method of treatment of hypertension as medicinal agent are described. The compounds of this invention are useful in the treatment of gastrointestinal hyperacidity and ulceration. These compounds also have utility as antihypertensive agents.

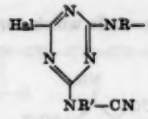
3,758,470

TRIAZINYL-ANTHRAQUINONES

Hans Ackermann, Bottmingen, Herbert Seiler, Riehen, and Paul Dussy, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Oct. 16, 1970, Ser. No. 81,598
Claims priority, application Switzerland, Oct. 17, 1969, 15,581/69
Int. Cl. C07d 55/20
U.S. Cl. 260—249 2 Claims

New fibre reactive azo, anthraquinone, formazane and phthalocyanine dyestuffs are described which possess as fibre reactive moiety a cyanamide-triazinyl grouping of the formula



wherein R and R' represent hydrogen or lower alkyl, bound via the —NR-grouping to a ring carbon atom of the aforesaid dyestuff.

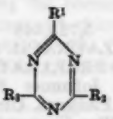
3,758,471

TRIAZINE DERIVATIVES

Tsutomu Irikura, Yasuo Abe, Kyuya Okamura, Kyoichi Higo, Akitoshi Maeda, and Fumihiko Morinaga, Tokyo, Japan, assignors to Kyorin Seiyaku Kabushiki Kaisha

No Drawing. Continuation of abandoned application Ser. No. 808,683, Mar. 19, 1971. This application June 15, 1971, Ser. No. 153,396
Claims priority, application Japan, Apr. 10, 1968, 43/23,906, 43/23,907; June 6, 1968, 43/38,831; June 28, 1968, 43/44,996
Int. Cl. C07d 55/20, 55/22
U.S. Cl. 260—249.6 3 Claims

Novel s-triazine derivatives having anti-inflammatory and anti-atherosclerotic activity and of the formula



wherein

R_1 stands for phenethylamino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino;

R_2 stands for amino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino; and

R_3 stands for straight or branched alkyl of from 1–6 carbon atoms, pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5 in which R_4 is hydrogen or straight or branched alkyl of from 1–6 carbon atoms and R_5 is straight or branched alkyl with from 1–6 carbon atoms, with the proviso that

(a) when R_1 is phenethylamino, R_2 is amino and R_3 is straight or branched alkyl of from 2–6 carbon atoms;

(b) when R_1 is aralkylamino, pyrrolidino, piperidino or 2-ketopiperazine-4-yl, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms;

(c) when R_1 is cyclohexylamino or straight or branched hexylamino, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms; and

(d) when R_1 is cyclohexylamino, R_2 is amino and R_3 is pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5, wherein R_4 and R_5 have the above meaning.

3,758,472

PREPARATION OF 2-ALKOXY-4-HYDROXYPYRIMIDINES

Roy Dennis Bowden, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Dec. 9, 1970, Ser. No. 96,578
Claims priority, application Great Britain, Dec. 10, 1969, 60,324/69
Int. Cl. C07d 51/38
U.S. Cl. 260—251 R 4 Claims

2 - alkoxy - 4 - hydroxypyrimidines (useful as intermediates in the production of 2-alkylamino - 4 - hydroxypyrimidines) are obtained by interaction of O - alkyl isoureas and 2-substituted-aminoalk-1-ene-1-carboxylates in the presence of a base.

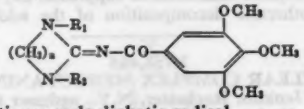
3,758,473

2-ACYLIMINO-1,3-DIAZACYCLOALKANES

Robert Armistead Lucas, Mendham, and Herbert Morton Blatter, Summit, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 129,185, Mar. 29, 1971, which is a continuation-in-part of application Ser. No. 26,433, Apr. 7, 1970, which is a continuation-in-part of application Ser. No. 884,322, Dec. 11, 1969, now Patent No. 3,627,889, which in turn is a continuation-in-part of application Ser. No. 839,704, July 7, 1969, now Patent No. 3,655,895. This application June 29, 1971, Ser. No. 158,115
Int. Cl. C07d 49/30, 51/18, 53/07
U.S. Cl. 260—256.4 H 5 Claims

1 - R_1-2-trimethoxybenzoylimino-1,3-diazacycloalkanes, e.g. those of the formula



R_1=aliphatic or cycloaliphatic radical

R_2=H, alkyl or alkanoyl

n=2–4

or salts thereof exhibit hypnotic effects.

3,758,474

PROCESS FOR THE PRODUCTION OF 2-ARYL-3-IMINO-s-TRIAZOLO-[4,3-α] - 5 - METHYL-7-HYDROXY-PYRIMIDINES

Erik Herkenrath, Litterna, Visp, Switzerland, assignor to Lonza Ltd., Gampel/Valais (Direction), Basel, Switzerland

No Drawing. Filed Jan. 22, 1971, Ser. No. 108,949
Claims priority, application Switzerland, Jan. 27, 1970, 1,084
Int. Cl. C07d 51/46
U.S. Cl. 260—256.4 F 5 Claims

Process for the preparation of 2-aryl-3-imino-s-triazolo-[4,3-α]-5-methyl-7-hydroxy pyrimidines by reaction of diketene with 3,5-diamino-1-aryl-1,2,4-triazoles, which may be formed by reaction of an aryl hydrazine and dicyano-diamide. The compounds are useful in the photographic arts as fog inhibitors.

3,758,475

PYRIDO[2,3-d]PYRIMIDIN-2-ONES

Goetz E. Hardtmann, Florham Park, N.J., and Hans Ott, Pfeffingen, Switzerland, assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 870,445, Oct. 20, 1969, which is a continuation-in-part of application Ser. No. 782,743, Dec. 10, 1968, both now abandoned. This application July 20, 1971, Ser. No. 164,453
Int. Cl. C07d 57/20
U.S. Cl. 260—256.4 F 15 Claims

Compounds are of the class of 1-substituted-4-aryl-pyrido[2,3-d]pyrimidin-2-ones, which are useful as anti-inflammatory agents. Intermediates for preparation include 1 - unsubstituted-4-aryl-pyrido[2,3-d]pyridimin-2-ones and pyridyl-phenyl ketone imines.

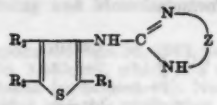
3,758,476

2-(THIENYL-3'-AMINO)-1,3-DIAZACYCLOALKENES

Robert Rippel, Hofheim, Taunus, Heinrich Ruschig, Bad Soden, Taunus, and Ernst Lindner and Manfred Schorr, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Aug. 6, 1970, Ser. No. 61,853
Claims priority, application Germany, Aug. 16, 1969, P 19 41 761.9
Int. Cl. C07d *99/06*
U.S. Cl. 260—256.5 R 1 Claim

2-(thienyl-3'-amino)-diazacycloalkenes of the formula



having hypotensive properties, in which R_1, R_2 and R_3 are hydrogen, lower alkyl, halogen, cyano or phenyl or R_2 and R_3 together are trimethylene or tetramethylene, Z is alkylene of 2–4 carbon atoms of which 2–3 are in the ring, and their acid addition salts. Processes for the preparation of the above compounds.

3,758,477

1-ACYL-URACIL HERBICIDAL COMPOUNDS

Adolf Zeidler, Ludwigshafen, Hans Kiefer, Wachenheim, Adolf Fischer, Mutterstadt, and Hans-Dieter Hoffmann and Franz Merger, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 30, 1971, Ser. No. 167,844
Claims priority, application Germany, Aug. 25, 1970, P 20 41 996.9
Int. Cl. C07d *51/30*
U.S. Cl. 260—260 4 Claims

Uracil compounds which are substituted in the 1-position by substituted acyl radicals and which have a good herbicidal action.

3,754,478

PROCESS OF OBTAINING TABERSONINE

Jacques Emile Poisson, 6 Avenue Georges Clemenceau, Sceaux, France

No Drawing. Continuation-in-part of abandoned application Ser. No. 810,845, Mar. 26, 1969. This application July 16, 1971, Ser. No. 163,506
Int. Cl. C07d *33/48*
U.S. Cl. 260—287 R 6 Claims

Multi-step extraction process for obtaining tabersonine from alkaloid containing plant seeds of the Apocynaceae family: containing plant seeds Voacanga, Amsonia, and Stemadenia. Extraction is performed successively by solvents of decreasing selectivity in relation to the amounts of non-alkaloid materials, fatty materials, and other harmful substances in the drug or vegetable raw material.

3,758,479

NITRO AND SULPHAMOYL SUBSTITUTED DIBENZODIAZEPINES

Jean Schmutz and Fritz Hunziker, Bern, Switzerland, assignors to Sandoz-Wander, Inc.

No Drawing. Application Oct. 21, 1968, Ser. No. 769,373, now Patent No. 3,539,573, dated Nov. 10, 1970, which is a continuation-in-part of abandoned application Ser. No. 712,956, Mar. 14, 1968. Divided and this application July 6, 1970, Ser. No. 60,976
Claims priority, application Switzerland, Mar. 22, 1967, 4,103/67; May 9, 1967, 6,557/67; July 14, 1967, 10,115/67; Nov. 3, 1967, 15,453/67
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 TR 3 Claims

2 nitro and 2 - dimethylaminosulfonyl-11-(piperazinyl and 4 - methyl piperazinyl)-dibenzo[b,e][1,4]diazepines are prepared. They are useful as C.N.S. agents.

3,758,480

s-TRIAZOLO[5,1-a]ISOQUINOLINES AND DERIVATIVES THEREOF

Hans K. Reimlinger, Brussels, and Jan Joseph Maurice Vandewalle, Mortsel, Belgium, assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed July 10, 1968, Ser. No. 743,628
Int. Cl. C07d *35/34*
U.S. Cl. 260—288 R 1 Claim

s-Triazolo[5,1-a]isoquinolines are prepared by cyclization of a N-(1-isoquinolyl)amidine. 5,6-dihydro-s-triazolo [5,1-a]isoquinolines are prepared by reducing the s-triazolo[5,1-a]isoquinolines. The novel compounds of the invention are useful as antioxidants, corrosion inhibitors, as reaction intermediates, and as acid acceptors.

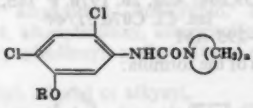
3,758,481

N-[2,4-DICHLORO - 5-(HALOALKOXY)-PHENYL-CARBAMOYL]-PYRROLIDINE OR PIPERIDINE

Masahiro Hya, Junichi Saito, Nobu Fukazawa, Tatsuo Tamura, Kazuo Kurihara, and Norihisa Morishima, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 16, 1972, Ser. No. 263,510
Claims priority, application Japan, June 30, 1971, 46/47,164
Int. Cl. C07d *29/30*
U.S. Cl. 260—293.77 11 Claims

New urea compounds of the formula



wherein

R is halogen-substituted lower alkyl, i.e., alkyl of from 1 to 6, preferably 1 to 4, carbon atoms, and
n is 4 or 5

are excellent herbicides, particularly selective herbicides usable in rice cultivation.

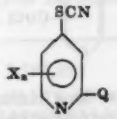
3,758,482

HALOPYRIDYL THIOCYANATES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed June 30, 1971, Ser. No. 158,568
Int. Cl. C07d *31/48*
U.S. Cl. 260—294.8 G 7 Claims

Compounds corresponding to the formula



wherein each X independently represents chloro or bromo; *n* represents an integer of from 1 to 3; and Q represents cyano (—CN), trifluoromethyl (—CF_3), methylsulfonyl (—SO_2CH_3), chloro or bromo are prepared and are useful as bactericides and fungicides.

3,758,483

TETRAHYDROPYRIDINE DERIVATIVES

Albrecht Edenhofer, Riehen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed May 28, 1971, Ser. No. 148,119
Int. Cl. C07d *31/44*
U.S. Cl. 260—295 AM 6 Claims

Tetrahydropyridine derivatives and processes for the preparation thereof are disclosed. These tetrahydropyridine compounds are useful as psychosedative agents.

3,758,484

3-β-ACETOXY 11-OXO NOROLEANENE-(12) 20β-CARBOXYLIC ACID N-METHYL PIPERIDOL-(4) ESTER

Helmut Kraft, Neckarhausen, Frank Zimmermann, Mannheim, and Hans-Peter Hofmann, Ludwigshafen, Germany, assignors to Knoll AG, Chemische Fabriken, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 25, 1971, Ser. No. 174,924
Claims priority, application Germany, Sept. 2, 1970, P 20 43 479.1
Int. Cl. C07d 29/24
U.S. Cl. 260—293.56 3 Claims

3-β-acetoxy 11-oxo noroleanene-(12) 20β-carboxylic acid N-methyl piperidol-(4) ester and physiologically tolerable acid addition salts thereof that are orally administerable and have superior inflammation inhibiting effects are prepared by reacting 3β-acetoxy 11-oxo noroleanene-(12) 20β-carboxylic acid or a functional derivative thereof with N-methyl piperidol-(4).

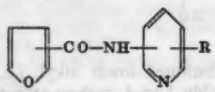
3,758,485

FURAN CARBOXYLIC ACID PYRIDYLAMIDES

Stanislaw Biniecki, Platnicza str. 38; Piotr Kubikowski, Kredytowa str. 8, m. 7; Wojciech Kostowski, Kredytowa str. 2, m. 20; Wanda Modrzejewska, Grochowska str. 221, m. 13; and Pawel Nantka-Namirski, Swierczewskiego str. 82, m. 122, all of Warsaw, Poland

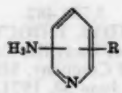
No Drawing. Filed Mar. 8, 1971, Ser. No. 122,022
Claims priority, application Poland, Mar. 7, 1970, P 139,266; Aug. 26, 1970, P 145,224
Int. Cl. C07d 31/44
U.S. Cl. 260—295 AM 6 Claims

Compounds of the formula:



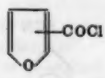
(I)

wherein R is hydrogen or a lower alkyl group of 1–4 carbon atoms and salts thereof are prepared by reacting a compound of the formula:



(II)

with a furan carboxylic acid chloride of the formula:



(III)

These compounds have long lasting pressure action and they are also central nervous system stimulants.

3,758,486

RARE EARTH NIOBATE COMPOSITION

Richard C. Ropp, Warren, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

No Drawing. Filed May 13, 1969, Ser. No. 824,300
Int. Cl. C09k 1/46
U.S. Cl. 252—301.4 R 6 Claims

Luminescent compositions of the system comprising yttrium, lanthanum, gadolinium, or combinations thereof, niobate activated by selected rare earth metals are specified. The orthoniobate is the preferred composition and is provided by utilizing a 1:1 gram atom ratio of yttrium, lanthanum, and gadolinium to niobium. Luminescent compositions of the system are all excited by ultraviolet radiation with the emission characteristic depending upon the particular selected rare earth metal activator.

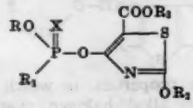
3,758,487

THIAZOLO(THIONO)-PHOSPHORIC(PHOSPHONIC) ACID ESTERS

Hellmut Hoffman, Wuppertal-Elberfeld, Ingeborg Hammann, Cologne, and Wilhelm Stendel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,901
Claims priority, application Germany, Dec. 29, 1970, P 20 64 307.6
Int. Cl. C07d 19/32
U.S. Cl. 260—302 E 8 Claims

Thiazolo(thiono)-phosphoric(phosphonic) acid esters of the general formula



(I)

in which

R, R_2 and R_3 are alkyl radicals with 1 to 6 carbon atoms,

R_1 is an alkyl or alkoxy radical with 1 to 6 carbon atoms, and

X is oxygen or sulfur,

which possess activity against acarids, bacteria, fungi, yeasts and insects.

3,758,488

PROCESS FOR PREPARING THIAZOLE DERIVATIVES

Stephan P. Kukolja and Robert B. Morin, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Original application May 16, 1969, Ser. No. 825,401, now Patent No. 3,702,328. Divided and this application July 1, 1971, Ser. No. 159,024
Int. Cl. C07d 91/32, 99/10
U.S. Cl. 260—302 R 5 Claims

Process for preparing thiazolecarbonylamino-substituted butenoic acids and new thiazolecarbonylamino-substituted oxazolone compounds, e.g., 2 - [N-(2-phenoxymethyl-4-thiazolyl)carbonyl]amino-3-methyl-butenoic acid, and 2-(2' - phenoxymethyl-4'-thiazolyl)-4-isopropylidene-5-oxazolone by treating a 2-(2-substituted-amido-1-thioacetyl-2-ethenyl)-4-isopropylidene-5-oxazolone with acid or base, in an inert organic solvent, or in admixture with the alcohol of the desired ester, which products of the process can be used as antibiotics and anti-fungal agents, as intermediates in the synthesis of penicillin and cephalosporin compounds and as antiradiation chemicals.

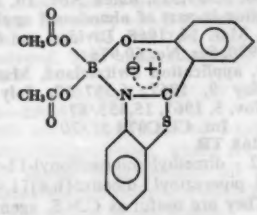
3,758,489

1,3,2-OXAZABORINIDES AND METHOD FOR PREPARING THE SAME

Thurairajah Padmanathan, Highland Park, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application May 27, 1968, Ser. No. 732,045, now Patent No. 3,621,023, dated Nov. 16, 1971. Divided and this application Apr. 19, 1971, Ser. No. 135,360
Int. Cl. C07d 107/02
U.S. Cl. 260—304 1 Claim

The 1,3,2-oxazaborinide of the formula



is characterized by affinity for polyesters, nylon and acetate when applied by disperse dyeing methods and fluoresces on the fibers.

3,758,490

PERFLUOROALKYLSULFONAMIDOBENZOTHIAZOLES

Joseph Kenneth Harrington, Edina, Donald C. Kvam, North Oaks, Arthur Mendel, Vadnais Heights, and Jerry E. Robertson, North Oaks, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Application June 30, 1969, Ser. No. 837,900, now Patent No. 3,642,817, which is a continuation-in-part of abandoned application Ser. No. 588,338, Oct. 21, 1966. Divided and this application May 11, 1971, Ser. No. 142,379

Int. Cl. C07d *91/46*

U.S. Cl. 260—305 2 Claims

N-substituted perfluoroalkanesulfonamides in which the sulfonamide nitrogen substituent is benzothiazolyl, i.e. perfluoroalkylsulfonamidobenzothiazoles. Also included are processes for the preparation and use of said compounds. The compounds are active as anti-microbial agents and polymerization catalysts.

3,758,491

NOVEL ANTI-INFECTIVE AGENTS AND MEANS OF PRODUCING THE SAME

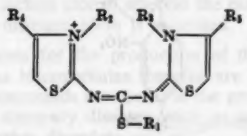
David B. Capps, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 111,094, Jan. 29, 1971. This application Jan. 7, 1972, Ser. No. 216,281

Int. Cl. C07d *99/06*

U.S. Cl. 260—306.7 21 Claims

Novel thiazolium salts (I) having pharmacological



(I)

activity and being particularly useful as anti-infective agents, are provided by: (a) reacting the corresponding 2-[[bis(methylthio)methylene]amino]thiazolium salt and 2-imino-4-thiazoline, (b) reacting methyl iodide and a salt of the corresponding dithio-4-thiazoline-$\Delta^{2,N}$-carbamic acid with 2-imino-4-thiazoline, (c) reacting a compound R_3X and the corresponding 3-(4-thiazolin-2-ylidene)-2-R_1-1-(2-thiazolyl)-2-thiopseudourea, (d) reacting a compound R_1X and the corresponding 1,3-bis(3-substituted-4-thiazolin)-2-thiourea, or (e) converting a salt (I) or hydroxide thereof by means of anion exchange; where R_1 is a C_1–C_{10} alkyl, —CH_2CON(lower alkyl)$_2$, —CH_2COO(lower alkyl), phenethyl, 2-phenoxyethyl, benzyl, α-methylbenzyl, mono- or dichlorobenzyl, or allyl group; R_2 and R_3 are the same or different and independently represent a C_1–C_{10} alkyl, —$CH_2CH_2OCH_3$, —CH_2CH_2OH, benzyl, mono- or dichlorobenzyl, phenethyl, or 2-phenoxyethyl group, one of R_2 and R_3 additionally representing a —CH_2CON(lower alkyl)$_2$ or —CH_2COO(lower alkyl group); R_4 and R_5 are the same or different and independently represent H or CH_3; A is an anion; and X is a chloride, bromide or iodide ion or a tosylate or methanesulfonate group.

3,758,492

1-(1,3,4-THIADIAZOL-2-YL)-IMIDAZOLIDINONE-(2) COMPOUNDS

Carl Metzger, Wuppertal-Elberfeld, Dietrich Rucker, Bietigheim, near Ludwigsburg, and Ludwig Eue, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

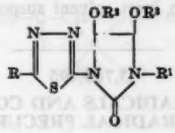
No Drawing. Filed Mar. 16, 1971, Ser. No. 124,917

Claims priority, application Germany, Mar. 20, 1970, P 20 13 407.0

Int. Cl. C07d *99/10*

U.S. Cl. 260—306.8 D 16 Claims

Certain novel 1-(1,3,4-thiadiazol-2-yl)-imidazolidinone-(2) of the formula:



in which

R is hydrogen, alkyl, haloalkyl, cycloalkyl, alkoxy, alkoxyalkyl, halocycloalkyl, alkoxyalkylthio, optionally substituted aryl, alkenyl, alkynyl, alkylthio, alkenylthio, alkynylthio, aralkylthio, alkylsulfonyl, alkylsulfonyl, alkenylsulfoxy, alkenylsulfonyl, alkynylsulfonyl, alkynylsulfonyl, aralkylsulfoxyl or aralkylsulfonyl,

R^1 is lower alkyl, alkenyl or alkynyl,

R^2 is an acyl radical of the formula R^4 —CO— wherein R^4 is lower alkyl, haloalkyl, optionally substituted aryl, lower alkoxy or a radical of the formula

wherein R^5 is hydrogen, lower alkyl or possibly substituted aryl, and R^6 is alkyl or possibly substituted aryl, and

R^3 stands for any of the radicals for which R^2 may stand or lower alkyl or alkenyl;

are outstandingly effective herbicides with particularly selective action.

3,758,493

CARBOXYLIC ACID SALTS OF 1-AMINOALKYL-2-POLYMERIZED CARBOXYLIC FATTY ACID IMIDAZOLINES

Jim Maddox, Jr., Houston, Tex., assignor to Texaco Inc., New York, N.Y.

No Drawing. Original application June 29, 1967, Ser. No. 649,823, now Patent No. 3,629,104. Divided and this application Dec. 17, 1970, Ser. No. 99,229

Int. Cl. C07d *49/36*

U.S. Cl. 260—309.6 2 Claims

Normal and acid salts of substituted imidazolines and saturated aliphatic mono- and dicarboxylic acids for use in compositions of water soluble corrosion inhibitors. Continuous or intermittent application of liquid coatings of these inhibitors on metals, particularly ferrous metals in contact with sweet and sour petroliferous well fluids, form persistent films which afford protection against corrosion, even at elevated temperature.

3,758,494

PROCESS FOR THE PREPARATION OF 5-(4-AMINOBUTYL)-HYDANTOIN

Geertrudes H. Suverkropp, Geleen, and Werner Reichrath, Stein, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,712

Claims priority, application Netherlands, Dec. 23, 1970, 7018703

Int. Cl. C07d 49/32
U.S. Cl. 260—309.5 6 Claims

A process is disclosed whereby 5-(4-aminobutyl)-hydantoin is prepared by the liquid phase hydrogenation of 5-(3-cyanopropyl)-hydantoin or a mixture of 5-(3-cyanopropyl)-hydantoin and 1-ureido-4-cyanovaleramide, in the presence of an inert solvent suspension of a hydrogenation catalyst.

3,758,495

STABLE FREE RADICALS AND CORRESPONDING FREE RADICAL PRECURSORS

Rein Virkhaus, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 95,331, Dec. 4, 1970. This application Feb. 25, 1971, Ser. No. 119,052

Int. Cl. C07d 49/34
U.S. Cl. 260—309.6 10 Claims

The preparation of certain novel aminoaryl-substituted 1-oxyl-3-oxide-2-imidazoline free radicals and the corresponding 1,3-dihydroxy-tetrahydroimidazole stable free radical precursors, useful in direct positive or negative image-forming systems, and methods for their preparation are disclosed.

3,758,496

BENZYL 1,2,3,4-TETRAHYDROCARBAZOLE-3 OR 4-CARBOXYLATES

Ernest John Alexander, East Greenbush, and Aram Mooradian, Schodack, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 42,620, June 2, 1970, now Patent No. 3,687,969. This application Nov. 18, 1971, Ser. No. 200,205

Int. Cl. C07d 27/68
U.S. Cl. 260—315 36 Claims

Novel 9-aroyl-1,2,3,4-tetrahydrocarbazoles bearing a carboxy substituent at position 3 or 4 and corresponding esters having antiinflammatory activity, the preparation thereof and novel intermediates therefor are described.

3,758,497

PROCESS FOR THE PRODUCTION OF DEEPLY COLOURED, TRANSPARENT PIGMENTS OF THE ISOINDOLINE SERIES

Andre Pugin and Jost von der Crone, Riehen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 807,918, Mar. 17, 1969. This application July 12, 1971, Ser. No. 162,023

Claims priority, application Switzerland, Mar. 21, 1968, 4,328/68

Int. Cl. C08b 45/66; C08c 11/76; C09b 7/02
U.S. Cl. 260—325 8 Claims

A process for the production of deeply coloured, transparent isoindoline pigments is described which comprises production of a salt of the pigment by reaction with a base, and subsequent conversion of the salt to the pigment in its free, acidic form. Processes of colouring printing inks, lacquers and synthetic plastics materials with the aid of the thus treated pigments of increased color-depth and transparency are also disclosed.

3,758,498

PREPARATION OF MALEIMIDES

Peter Pfuller, Burgkirchen an der Alz, and Wenzel Kuhn, Feldkirchen, near Munich, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation of abandoned applications Ser. No. 718,254, Apr. 2, 1968, and Ser. No. 757,470, Sept. 4, 1968. This application Mar. 22, 1971, Ser. No. 126,990

Claims priority, application Germany, Apr. 27, 1967, F 52,260; Sept. 9, 1967, F 53,461

Int. Cl. C07d 27/18
U.S. Cl. 260—326.5 FM 9 Claims

Preparation of N-substituted maleimides by heating the corresponding N-substituted maleamic acids or mono-ammonium maleic acid salts in the presence of steam to a temperature within the range of from about 100° to 400° C.

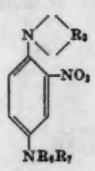
3,758,499

HETEROCYCLIC NITRO-p-PHENYLENEDIAMINES

Milos S. Bil, Forest Hills, N.Y., assignor to Clairol Incorporated, New York, N.Y.

No Drawing. Original applications Nov. 2, 1967, Ser. No. 683,758, now abandoned, and Apr. 8, 1968, Ser. No. 719,682, now Patent No. 3,632,582. Divided and this application Nov. 25, 1970, Ser. No. 92,868

Int. Cl. C07d 27/04
U.S. Cl. 260—326.5 L 1 Claim



wherein:

(a) R_5 is a divalent aliphatic radical, and

(b) R_6 and R_7 are selected from the group consisting of hydrogen, alkyl and hydroxyalkyl, at least one of R_6 and R_7 being other than hydrogen.

3,758,500

N-SULFONYL-INDOLE-3-ACETAMIDES

Clarence Stanley Rooney, Beaconsfield, Quebec, and Clarence Henry Gleason, Montreal, Quebec, Canada, assignors to Merck Sharp & Dohme (I.A.) Corp., Rahway, N.J.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,210

Claims priority, application Canada, Feb. 3, 1970, 73,875

Int. Cl. C07d 27/56
U.S. Cl. 260—326.12 R 7 Claims

Derivatives of indole-3-acetamide and indole-3-methylsulfonyl compounds are prepared which have utility as skeletal muscle stimulants.

3,758,501

SUBSTITUTED HETEROCYCLIC DERIVATIVES OF AZEPINE

Martin Joseph Weiss, 975 Phyliss Lane, Oradell, N.J. 07649; Gabriel Joseph Gibs, 87 Violet Drive, Pearl River, N.Y. 10965; John Frank Poletto, 35 Nanuet Ave., Nanuet, N.Y. 10954; and William Alan Remers, 108 Pawnee Drive, West Lafayette, Ind. 47906

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,876

Int. Cl. A61k *27/00;* C07d *27/54*

U.S. Cl. 260—326.9 6 Claims

This disclosure describes compounds of the class of substituted heterocyclic derivatives of azepine useful as antimicrobial agents.

3,758,502

ORGANIC COMPOUNDS

Fritz Seemann, 52 Spalenring, 4000 Basel, Switzerland, and Franz Troxler, 39 Drosselstrasse, 4103 Bottmingen, Switzerland

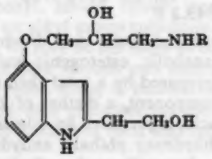
No Drawing. Filed Sept. 22, 1971, Ser. No. 182,911

Claims priority, application Switzerland, Sept. 30, 1970, 14,465/70

Int. Cl. C07d *27/52*

U.S. Cl. 260—326.15 2 Claims

The invention concerns novel indole derivatives of the formula:



wherein R is alkyl of 1 to 6 carbon atoms, or alkinyl of 3 to 6 carbon atoms, wherein the carbon atom attached to the nitrogen atom is saturated.

A process for the production of the said compounds as well as intermediates therefor are described.

The compounds are useful in the prophylaxis and treatment of coronary diseases, such as angina pectoris, and heart rhythm disorders.

3,758,503

1,3-DITHIOLE DERIVATIVES FROM ACETYLENIC COMPOUNDS SUBSTITUTED WITH AT LEAST ONE ELECTRON-WITHDRAWING GROUP AND CARBON DISULFIDE

Harris Dale Hartzler, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 17, 1970, Ser. No. 47,111

Int. Cl. C07d *71/00*

U.S. Cl. 260—327 M 5 Claims

Acetylenic compounds $R^1C{\equiv}CR^2$, in which at least one of the R^1 and R^2 substituents is an electron-withdrawing group react with carbon disulfide to give dithiole compounds of three different formulas, their ratio depending on the reaction parameters. In the presence of a coreactant HX, a dithiole substituted with the X group in the 2-position is formed. In the presence of a carboxylic acid or of an ethylenic compound, acetylenic compounds $R^1C{\equiv}CR^1$ react with carbon disulfide to form other 2-substituted dithioles. The novel compounds of this invention are useful in removing tarnish from silverware.

3,758,504

VINYLCYCLOPROPANECARBOXYLATES

Masanao Matsui, Tokyo, and Yositose Okuno, Toyonaka, Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan

No Drawing. Filed Mar. 16, 1971, Ser. No. 124,951

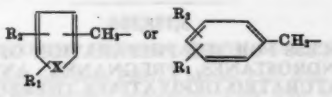
Claims priority, application Japan, Mar. 19, 1970, 45/23,731

Int. Cl. C07d *63/12, 5/16;* C07c *69/74*

U.S. Cl. 260—332.2 R 7 Claims

Vinylcyclopropanecarboxylates having an excellent insecticidal activity and a property harmless to mammals and cattles, of the formula,

wherein R is 2-propargyl-3-methyl-2-cyclopentene-1-one-4-yl,



wherein R_1 is allyl, propargyl, benzyl, thenyl, furylmethyl or phenoxy, R_2 is hydrogen, or R_1 and R_2 are bonded at respective ends to form a polymethylene group having 3 to 4 carbon atoms, and X is oxygen or sulfur.

3,758,505

ANTHRAQUINONE DYES CONTAINING N-METHYLENELACTAM

Charles H. Chang, Piscataway, N.J., assignor to GAF Corporation, New York, N.Y.

No Drawing. Filed Apr. 16, 1971, Ser. No. 134,852

Int. Cl. C07d *27/08*

U.S. Cl. 260—326.5 C 4 Claims

New anthraquinone compounds having an aryl radical bearing an N-methylenelactam substituent thereon. These compounds are used as dyes with excellent light and sublimation fastness for textile fibers such as polyesters.

3,758,506

PHENOXYACETIC ACID DERIVATIVES

Jean Jacques Godfroid, Noisy-le-Sec, and Jean Eugene Thuillier, Paris, France, assignors to C.E.R.P.H.A. (Centre Europeen de Recherches Pharmacologiques), Arcueil, Val-de-Marne, France

No Drawing. Filed Oct. 7, 1970, Ser. No. 78,976

Claims priority, application France, Oct. 10, 1969, 6934760

Int. Cl. A61k *27/00;* C07d *63/12*

U.S. Cl. 260—332.2 A 5 Claims

4 (2-furyl keto), (2 - thienyl keto) or 2(5 methyl thienyl keto), 2,3 dichloro phenoxyacetic acids, their alkali metal salts and pharmaceutically acceptable base addition salts, are valuable as strong diuretics.

3,758,507

1,2 - EPOXYMETHANO-A-NORSTEROID COMPOUNDS AND PROCESS FOR PREPARATION THEREOF

Masaru Ogata, Kobe-shi, Japan, assignor to Shionogi and Company, Ltd., Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 583,054, Sept. 29, 1966. This application Dec. 30, 1969, Ser. No. 889,288

Claims priority, application Japan, Sept. 29, 1965, 40/59,897

Int. Cl. C07d *3/00*

U.S. Cl. 260—333 11 Claims

1,2-epoxymethano-A-norsteroid compounds containing 17 to 26 carbon atoms in the steroid nucleus and being optionally substituted at C–7 with methyl, C–9 with fluorine, C–11 with oxo or hydroxy, C–16 with methyl, hydroxy or esters or ethers thereof, C–17 with oxo or C–17α with lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, hydroxy or esters or ethers thereof, C–17β with hydroxy, esters or ethers thereof, acetyl, hydroxyacetyl, or conventional side chains or cholic acid or cholestane compounds, having hormonic activity, are prepared from the corresponding 2-lower hydrocarbonsulfonyloxymethyl- or halomethyl-A-norsteroid having a 1-hydroxy or ester substituent under basic conditions.

3,758,508

PROCESS FOR THE PREPARATION OF DESA-ANDROSTANES, PREGNANES, AND UNSATURATED DERIVATIVES THEREOF

Milan Radoje Uskokovic, Upper Montclair, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application June 17, 1968, Ser. No. 737,361, now Patent No. 3,704,324, which is a division of application Ser. No. 499,094, Oct. 20, 1965, now Patent No. 3,574,761, which in turn is a continuation-in-part of application Ser. No. 400,206, Sept. 29, 1964, now Patent No. 3,412,107. Divided and this application May 24, 1971, Ser. No. 146,483

Int. Cl. C07d *11/00*

U.S. Cl. 260—338 28 Claims

This invention is directed to processes for the preparation of desA-androstanes, pregnanes and unsaturated derivatives thereof by pyrolyzing the alkali metal salt of the corresponding 3,5-seco-3-oic acid. The intermediates prepared in accordance with the process of this invention enable the preparation of 9β,10α-steroids which are pharmacologically useful as anabolic, anti-androgenic, progestational and salt-retaining agents.

3,758,509

ARYL KETALS OF POLYCYCLIC OXO COMPOUNDS AND PROCESSES

Michael Rosenberger, Caldwell, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 11,023, Feb. 12, 1970, which is a continuation-in-part of application Ser. No. 824,319, May 13, 1969, now Patent No. 3,544,600, dated Dec. 1, 1970, and abandoned application Ser. No. 825,389, May 16, 1969. This application Sept. 22, 1970, Ser. No. 74,519

Int. Cl. C07d *13/13*

U.S. Cl. 260—340.5 13 Claims

The intermediates and processes of this disclosure provide a new stereo-specific total synthesis of steroidal materials having known valuable pharmacological properties. A fundamental feature of this disclosure is the utilization of aryl ketals, preferably phenylenedioxy ketals derived from catechol as protective groups for oxo moieties in the polycyclic intermediates used in the aforesaid total synthesis.

3,758,510

PROCESS FOR PRODUCING FLUORINATED CYCLIC KETALS

Serge Yvon Delavarenne, Wemmel, Belgium, assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed July 30, 1970, Ser. No. 59,723

Int. Cl. C07d *13/04*

U.S. Cl. 260—340.9 6 Claims

Fluorinated cyclic ketals are produced by cyclizing a fluorinated hemiketal chloroformate with a base. For instance, 2,2-bis(trifluoromethyl)-1,3-dioxolane is produced by cyclizing the monochloroformate ester of 1,1-bis(trifluoromethyl)-1-(2-hydroxyethoxy)methanol by using a base such as triethylamine as the cyclizing agent.

3,758,511

PREPARATION OF d,l-ZEARALENONES

Norman L. Wendler, Summit, David Taub, Metuchen, and Narindar Nath Girotra, Rahway, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Jan. 18, 1967, Ser. No. 609,995, now Patent No. 3,624,144. Divided and this application June 5, 1970, Ser. No. 57,392

Int. Cl. C07d *9/00*

U.S. Cl. 260—343.2 F 6 Claims

d,l-Zearalenone and mono- and di-ethers thereof, compounds havng anabolic, esterogenic and fertility control properties, are prepared by a total chemical synthesis. An aromatic ring component, a diether of 2-formyl-4,6-dihydroxy benzoic acid, is prepared by selective reduction of a diether of 3,5-dihydroxy phthalic anhydride; an aliphatic component, 2 - loweralkoxy-6-methyltetrahydropyran-2-butyl triphenyl phosphonium halide, is prepared via a sequence of reactions involving the condensation of 2-hydroxyhexanoic acid -δ-lactone with pent-4-enyl magnesium bromide, subsequent treatment with alcoholic acid to form 2-(pent-4-enyl)-2-loweralkoxy-6-methyl tetrahydropyran, which substance is in turn ozonized, reduced with alkali metal borohydride, reacted with an alkyl or aryl sulfonyl halide, and then with sodium bromide or iodide to afford 2-(δ-halobutyl)-2-loweralkoxy-6-methyl tetrahydropyran, which latter substance is reacted with tri-aryl phosphine to afford the above-stated aliphatic component. The aromatic and aliphatic components are coupled and the resulting 1-(3,5-diether-6-carboxyphenyl)-10-hydroxy-1-undecen-6-one ring-closed with trifluoroacetic anhydride to yield d,l-zearalenone di-ether, which is cleaved with boron tribromide or pyridine hydrochloride to d,l-zearalenone.

3,758,512

HYDROGENATION CATALYST

Junichi Kanetaka, Takashi Shimodaira, and Shoichiro Mori, Ibaragi, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

No Drawing. Continuation of abandoned application Ser. No. 865,966, Oct. 13, 1969. This application Feb. 22, 1972, Ser. No. 228,226

Claims priority, application Japan, Oct. 26, 1968, 43/78,068

Int. Cl. C07d *5/06*

U.S. Cl. 260—343.6 1 Claim

Nickel hydrogenation catalyst comprising nickel, molybdenum and rhenium.

3,758,513

CYCLO-SUBSTITUTED GAMMA-BUTYROLACTONES

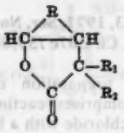
El Ahmadi I. Heiba, Princeton, and Ralph M. Dessau, Highland Park, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 799,944, Feb. 17, 1969, now abandoned, and Ser. No. 30,582, Apr. 21, 1970, which is a continuation-in-part of abandoned application Ser. No. 714,447, Mar. 20, 1968. This application Aug. 31, 1971, Ser. No. 176,687

Int. Cl. C07d 5/34

U.S. Cl. 260—343.3 8 Claims

This specification discloses cyclo-substituted gamma-butyrolactones having the formula:



In this formula, R may be $-(CH_2)_n$ wherein *n* is a whole number and is at least 6 but not greater than 15, an alkylene group containing at least 3 but not more than 10 carbon atoms, or a butyrolactone connected through its beta and gamma carbon atoms with 1 to 8 $-CH_2-$ groups interposed between either or both its beta or gamma carbon atoms. R_1 and R_2 may be hydrogen, chlorine, or a hydrocarbyl, carboxyl, amido, cyano, isocyano, or nitro group or may be an alkyl group substituted by any of the latter five groups. R_1 may be the same as or different from R_2. These lactones have various uses such as antiwear additives for hydrocarbon fuels, as inhibitors of oxygen corrosion of iron, and as a precursor for the preparation of antioxidants for hydrocarbon fuels and lubricants.

3,758,514

SUBSTITUTED BUTYROLACTONES DERIVED FROM NON-CONJUGATED POLYOLEFINS

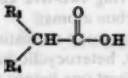
El Ahmadi I. Heiba, Princeton, and Ralph M. Dessau, Highland Park, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 799,938, Feb. 17, 1969, now abandoned, and Ser. No. 30,582, Apr. 21, 1970, which is a continuation-in-part of abandoned application Ser. No. 714,447, Mar. 20, 1968. This application Oct. 15, 1971, Ser. No. 189,741

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6 5 Claims

This specification discloses substituted butyrolactones having as substituents on the gamma carbon atom an alkenyl group, a butyrolactone-substituted alkyl group, or a butyrolactone-substituted alkenyl group. These compounds are formed by reacting an aliphatic non-conjugated polyolefin of 6 or more carbon atoms with a carboxylic acid having the formula



in the presence of a reducible metal ion of higher valent form such as managanic ion, Mn^{+3}. R_3 and R_4 may be hydrogen or an alkyl or cyano group containing in both groups a total of not more than 3 carbon atoms. R_3 may be the same as or different from R_4. Certain of these compounds can be polymerized, or copolymerized, with other olefinic materials, to form polymers, or copolymers, which can be employed in the manufacture of fibers. Certain of these compounds also can be reacted with an O,O-(dialkyl)phosphorodithioic acid to form an addition product which is useful as an antifriction agent for lubricating oils or as an insecticide or a herbicide. Other of these compounds can be hydrolyzed with an acid such as hydrochloric acid to form polyhydroxy, polycarboxylic acids which can be used for preparing alkyd resins.

3,758,515

METHOD FOR MANUFACTURING TETRONIC ACID

Karl-Josef Boosen, La Neuveville, Switzerland, assignor to Lonza Ltd., Gampel/Valais, Switzerland

No Drawing. Filed May 26, 1970, Ser. No. 40,699

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6 8 Claims

Process for the preparation of tetronic acid in an alkyl ester of gamma-chloro-acetoacetic acid is reacted with an aryl amine to form a beta-arylamino crotonic acid lactone. This is reacted with an alkali metal hydroxide to form a salt of tetronic acid from which tetronic acid is obtained by acidification.

3,758,516

EPOXIDIZED HYDROCARBON AMIDES

John B. Siddall and Jean Pierre Calame, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Application Apr. 21, 1969, Ser. No. 818,130, which is a continuation-in-part of application Ser. No. 618,339, Feb. 24, 1967, both now abandoned. Divided and this application Mar. 19, 1971, Ser. No. 126,270

Int. Cl. C07d 1/20

U.S. Cl. 260—348 A 6 Claims

Hydrocarbon amides and N-substituted hydrocarbon amides containing at least 12 carbon atoms in the hydrocarbon backbone chain and alkyl substituents at the C–3, 7 and 11 positions and/or double bond unsaturation between C–2,3, C–6,7, and C–10,11, and/or substituents at at each of positions C–2,3,6,7,10 and 11 which are arthropod maturation inhibitors.

3,758,517

PREPARATION OF C-17α ALKYL SUBSTITUTED PROPADIENYL STEROIDS

John A. Edwards, Los Altos, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Continuation-in-part of application Ser. No. 45,566, June 11, 1970, which is a continuation-in-part of application Ser. No. 877,521, Nov. 17, 1969, which in turn is a continuation-in-part of application Ser. No. 817,563, Apr. 18, 1969. This application Nov. 23, 1971, Ser. No. 201,559

Int. Cl. C07c 169/20

U.S. Cl. 260—397.4 18 Claims

Disclosed is a process for the preparation of alkyl substituted propadienyl steroids of the estrogen, estrane, and androstane series which contain optional substitution at other positions of the nucleus. This process involves treating a corresponding 3-(substituted propynyl) steroid wherein the substituent is halo, hydroxy or a conventional hydrolyzable ester or ether thereof, preferably bromo, chloro, or iodo, with a lithium dialkyl copper reagent. The 17α-propadienyl products are useful as estrogenic, anti-androgenic, progestational and anti-fertility agents. Those in the 6,6-difluoro series are novel.

3,758,518
CHLORINATED ALPHA-AMINOANTHRAQUINONES AND PROCESS FOR THEIR MANUFACTURE

Hans Rudolf Rickenbacher, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Continuation-in-part of Ser. No. 798,787, Feb. 12, 1969, abandoned, which is a continuation-in-part of Ser. No. 488,242, Sept. 17, 1965, abandoned. This application Jan. 4, 1971, Ser. No. 103,787

Claims priority, application Switzerland, Sept. 29, 1964, 12682/64; Aug. 23, 1965, 11824/65

Int. Cl. C08b *1/22*; C09b *1/50*

U.S. Cl. 260—381 **7 Claims**

The invention relates to a process for the manufacture of a chlorine containing aminoanthraquinone, wherein a 1-monoaminoanthraquinone is subjected to the action of chlorine in the presence of N-methyl-pyrrolidone or a carboxylic acid amide of the formula

in which R_1 and R_2 denote alkyl or cycloalkyl groups of the groups R_1 and R_2 together with the nitrogen atom may form a 5- or 6-membered heterocyclic ring and R_3CO- represents the radical of an aliphatic-carboxylic acid.

3,758,519
DERIVATIVES OF DIPHENYLAMINE

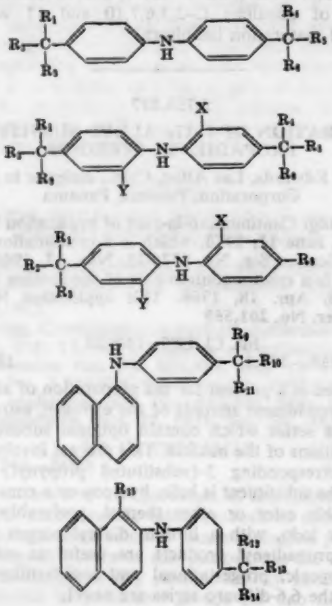
Edward L. Wheeler, Woodbury, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Division of Ser. No. 787,577, Dec. 27, 1968, Pat. No. 3,649,690, which is a division of Ser. No. 540,817, April 7, 1966, Pat. No. 3,505,225. This application July 16, 1971, Ser. No. 163,443

Int. Cl. C09b *11/12*

U.S. Cl. 260—390 **3 Claims**

Derivatives of diphenylamine or phenylnapthyl-amine of the types



where R_1, R_9 and R_{12} are phenyl or p-tolyl groups and the remaining R's, X and Y may be alkyl or various other substituents, are useful antioxidants for lubricating oils or for various polymeric substrates (e.g., polypropylene) especially in combination with a dialkyl thiodipropionate. A typical antioxidant is 4,4'-bis-(alpha,alpha,p-trimethylbenzyl)diphenylamine made by reacting p,alpha-dimethylstyrene with diphenylamine.

3,758,520
PROCESS FOR THE PREPARATION OF BETA-NAPHTHOQUINONE SEMICARBAZONE

Camille Alphonse Beaudet, Avenue A. Lancaster, 86 Uccle, Belgium

Filed July 23, 1971, Ser. No. 165,399

Int. Cl. C07c *133/08*

U.S. Cl. 260—396 N **4 Claims**

A process for the preparation of β-naphthoquinone semicarbazone, which comprises reacting an aqueous solution of semicarbazide hydrochloride with a boiling ethanolic solution of β-naphthoquinone and taking care that the relative amounts of water and ethanol in the reaction mixture be in a volume ratio of from 40:100 to 360:100.

In this way, the β-naphthoquinone semicarbazone is obtained with great purity and high yield.

3,758,521
17A-(5'-SUBSTITUTED-5'-HYDROXY-PENTA-1',3'-DIYNYL)-STEROIDS

Colin M. Burgess, Rickmansworth; Peter Feather, Guildford, and Philip H. Goatly, Buckhurst Hill, all of England, assignors to BDH Pharmaceuticals Limited, Edinburgh, England

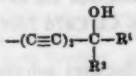
Filed May 13, 1970, Ser. No. 37,035

Claims priority, application Great Britain, May 16, 1969, 25,228/69

Int. Cl. C07c *169/08*

U.S. Cl. 260—397.5 **7 Claims**

Compounds having sex hormonal activity consisting of steroid compounds processing a 17β-oxygen function and being substituted in the 17α-position by a group of the structure



wherein

R^1 is selected from the group consisting of carbocyclic aryl, aralkyl, heterocyclic having 5 or 6 members and containing at least one hetero atom selected from O, N and S, alicyclic, alkenyl having two-five carbon atoms and alkyl having one-five carbon atoms;

R^2 is selected from the group consisting of hydrogen, carbocyclic aryl, aralkyl, heterocyclic having 5 or 6 members and containing at least one hetero atom selected from O, N and S, alicyclic, alkenyl having two-five carbon atoms and alkyl having one-five carbon atoms; or

R^1 and R^2 together with the carbon atom to which they are attached form an alicyclic ring.

The compounds exhibit an unusual separation of oestrogenic and anti-fertility activities (in rats) compared with ethynyl oestradiol.

3,758,522

CERTAIN SULFAMYLBENZOIC ACIDS, ESTERS THEREOF, AND PHARMACEUTICALLY ACCEPTABLE SALTS THEREOF

Peter Werner Feit, Gentofte, and Ole Bent Ivaermose Nielsen, Vanlose, both of Denmark, assignors to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

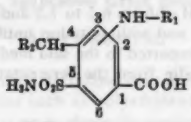
Filed June 16, 1971, Ser. No. 153,879

Claims priority, application Great Britain, June 18, 1970, 29,742/70

Int. Cl. C07c *143/78*

U.S. Cl. 260—397.7 24 Claims

The invention relates to a series of new compounds, their salts and esters and to methods for the preparation of the compounds having the general formula:



in which the NH—R_1 group can be in the 2- or 3-position, R_1 represents an aliphatic radical with from three to eight carbon atoms in the chain, or a mononuclear aromatically or a mononuclear heterocyclically substituted methyl or ethyl group, and R_2 represents an unsubstituted or substituted phenyl group.

The compounds of the invention possess pronounced diuretic and saluretic activities.

3,758,523

PROCESS FOR THE PREPARATION OF DELTA 4-3-OXO-1-ALPHA-METHYL STEROIDS

Rainer Philippson, Bergkamen, and Emanuel Kaspar, Kamen, both of Germany, assignors to Schering A.G., Berlin and Bergkamen, Germany

Filed Sept. 10, 1971, Ser. No. 179,537

Claims priority, application Germany, Sept. 14, 1970, P 20 46 640.4

Int. Cl. C07c *169/20*

U.S. Cl. 260—397.3 5 Claims

Δ^4-3-Oxo-1α-methyl steroids are produced by the reaction of $\Delta^{1,4}$-3-oxo steroids with dimethyllithium copper.

3,758,524

PROCESS FOR THE MANUFACTURE OF 21-FLUOROSTEROIDS

Georg Anner, Basel, and Peter Wieland, Oberwil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

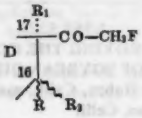
Filed Dec. 30, 1970, Ser. No. 103,010

Claims priority, application Switzerland, Jan. 9, 1970, 241/70

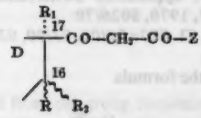
Int. Cl. C07c *169/30*

U.S. Cl. 260—397.47 27 Claims

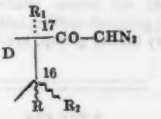
Process for the manufacture of 21-fluoro-20-oxopregnane compounds of the partial formula



wherein R denotes hydrogen and R_1 and R_2 each denote hydrogen or a hydrocarbon radical or R_1 together with R denotes a double bond, wherein a steroid of the following partial formula



wherein R, R_1 and R_2 have the same meaning as above and Z represents hydrogen or an esterified carboxyl group, is reacted with an agent which transfers diazo groups, the resulting 21-diazo 20-ketone of partial formula



is reacted with hydrogen fluoride and, if desired, functionally modified hydroxyl groups are converted into free hydroxyl groups or free hydroxyl groups are functionally modified at any desired stage.

3,758,525

PROCESS FOR PREPARING N-HIGHER ALIPHATIC ACYL ACIDIC AMINO ACIDS

Ryonosuke Yoshida, Kanagawa; Ippei Yoshimura, Tokyo, and Masahiro Takehara, Kanagawa, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed Mar. 20, 1970, Ser. No. 21,283

Claims priority, application Japan, Apr. 1, 1969, 44/25036

Int. Cl. C08h *3/00*

U.S. Cl. 260—402.5 6 Claims

The halides of aliphatic carboxylic acids having 8 to 22 carbon atoms can be reacted with acidic amino acids to form N-acyl amino acids in very good yields if the reaction is carried out in an alkaline solvent medium of 20 – 85 percent (vol.) water and 80 – 15 percent acetone, methylethylketone, dioxane, tetrahydrofuran, tert-butanol, or cyclohexanone.

3,758,526

PROCESS FOR PREPARATION OF B-CYANOETHYL ESTERS OF CARBOXYLIC ACIDS

Yasuhiro Fujita, Otake, and Teijiro Morimoto, Iwakuni, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed May 27, 1970, Ser. No. 41,043

Int. Cl. C09f *7/00*

U.S. Cl. 260—404 1 Claim

A process for the preparation of beta-cyanoethyl esters of carboxylic acids which comprises heating and reacting acrylonitrile and a carboxylic acid selected from the groups consisting of saturated aliphatic carboxylic acids having one to 20 carbon atoms, unsaturated aliphatic carboxylic acids having one to 20 carbon atoms, alicyclic carboxylic acids having six to 20 carbon atoms and aromatic carboxylic acids having seven to 20 carbon atoms in the presence of a copper derivative and metallic copper.

3,758,527
ESTERS OF 1-AMINOALKYL-CYCLOALKANOLS

Adrian Marxer, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed June 23, 1970, Ser. No. 49,184
Claims priority, application Switzerland, July 4, 1967, 10263/69; May 27, 1970, 8026/70
Int. Cl. C07c 91/00, 93/00, 93/24
U.S. Cl. 260—404 6 Claims

Compounds of the formula

in which R_a stands for a cycloalkylidene radical with 10 to 14 ring members, R_1 stands for an acyl radical or hydrogen, alk stands for lower alkylene or the radical

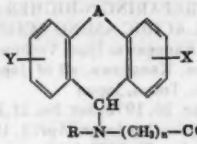
and R_2 for a tertiary amino group, are useful as antimicrobial agents.

3,758,528
TRICYCLIC COMPOUNDS

Charles Malen, Fresnes; Bernard Danree, St. Germain en Laye, and Jean-Claude Poignant, Wissous, all of France, assignors to Societe en nom collectif Science Union Et Cie and Societe Francaise De Recherche Medicale, Suresnes, France

Filed Mar. 13, 1970, Ser. No. 19,503
Int. Cl. C11c 3/00
U.S. Cl. 260—404 5 Claims

Tricyclic compounds of the formula :



wherein:

A is $-(CH_2)_m-$, $-CH=CH-$, $-(CH_2)_p-O-$, $-(CH_2)_p-S-$, $-(CH_2)_p-SO_2-$, $-(CH_2)_p-NR_1$ or $-SO_2-NR_2-$ in which m is 1, 2 or 3, p is 1 or 2, R_1 is hydrogen or lower alkyl and R_2 is lower alkyl ;

X and Y are hydrogen or halogen ;

R and R′ are hydrogen or lower alkyl, and

n is an integer of from 1 to 12 inclusive.

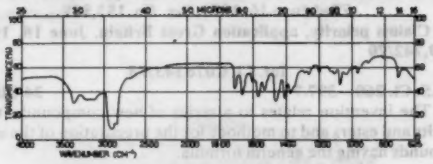
These compounds possess psychostimulant, antidepressive, analgesic, antitussive, antihistaminic and gastric antisecretory properties.

3,758,529
ANTIBIOTIC THERMOZYMOCIDIN AND A PROCESS FOR ITS PREPARATION

Renato Craveri, Milan; Pier Luigi Manachini, Cologno Monzese, Milan, and Fabrizio Aragozzini, Milan, all of Italy, assignors to Societa Italiana Resive S.I.R. S.p.A., Milan, Italy

Filed Mar. 15, 1972, Ser. No. 234,744
Claims priority, application Italy, Mar. 23, 1971, 22111 A/71
Int. Cl. C08h 17/36
U.S. Cl. 260—404 1 Claim

A process for the manufacture of the antibiotic thermozymocidin which comprises the steps of cultivating the micro-organism belonging to the thermophilic eumycetes group and designated as ATCC No. 20349 in an aqueous nutrient medium containing a source of organic carbon and a source of organic or inorganic nitrogen, at a temperature of



about 40°C, at a pH of from 6.5 to 7.5 and under submerged aerobic conditions and with agitation until a substantial antibiotic activity is imparted to the said medium, and isolating said thermozymocidin from the fermentation broth, is disclosed.

3,758,530
DIRECTED INTERESTERIFICATION OF GLYCERIDES OF FATTY ACIDS AND PRODUCTS THEREOF

George Barsky, 50 E. 41st St., New York, N.Y.

Filed June 30, 1971, Ser. No. 158,617
Int. Cl. C11c 3/10; A23d 5/00
U.S. Cl. 260—410.7 7 Claims

In fatty glycerides prepared by esterification of mixed fatty acids and glycerine, the fatty acid radicals are randomly distributed among the glycerine molecules. Random distribution occurs when natural glycerides or mixtures of natural or other glycerides are interesterified, for example, by the addition of sodium methylate. To make a glyceride of a specific or a non-random distribution of fatty acid radicals, elaborate and costly methods must be used. This invention discloses that by conducting interesterification under high pressure, the distribution of the fatty acid radicals can be directed away from the random.

3,758,531
FUNCTIONAL BIS (PERFLUOROALKYLSULFONYL) ALKYL COMPOUNDS

Robert J. Koshar, Mahtomedi, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 807,408, March 14, 1969, Pat. No. 3,704,311. This application May 1, 1972, Ser. No. 249,244
Int. Cl. C07c 143/90
U.S. Cl. 260—400 1 Claim

Bis(perfluoroalkanesulfonyl)substituted methanes possessing reactible groups such as halogen, hydroxyl, carboxyl or ester groups or possessing carbon-to-carbon unsaturation are provided. The residual hydrogen of the methane is relatively acidic and the compounds form metallic and organic salts which are recoverable. The molecule with acid hydrogen can be further reacted by the reactible group to incorporate an acidic hydrogen in another molecule such as a polymer. The acidic hydrogen effects absorption of basic vapors such as ammonia, amines, etc. Bis(perfluoroalkylsulfonyl) bromomethanes add to olefinic double bonds.

3,758,532
PROCESS FOR IMPROVING THE COOKING STABILITY OF SOYBEAN OIL

Walter P. Gibble, La Habra, Calif., assignor to Hunt-Wesson Foods, Inc., Fullerton, Calif.

Filed Sept. 11, 1970, Ser. No. 71,328
Int. Cl. C09f 5/10
U.S. Cl. 260—420 19 Claims

Unhydrogenated or partially hydrogenated refined soybean oil is degassed under vacuum to remove a substantial propor-

tion of the air dissolved in the oil; the degassed oil is gassed with carbon dioxide and heated to a temperature above 100° C. in the presence of a copper chromite catalyst, optionally in the presence of activated charcoal. After the heat treatment the oil is cooled, filtered, bleached, and deodorized to yield the finished treated oil. The finished treated oil exhibits a frying and odor stability far surpassing soybean oil treated in any other manner.

3,758,533

TREATMENT OF TALLOW AND LIKE FATTY MATERIALS

Sydney Lee, Worsley, England, assignor to Colgate-Palmolive Company, New York, N.Y.

Filed June 3, 1971, Ser. No. 149,760

Claims priority, application Great Britain, June 4, 1970, 27,026/70

Int. Cl. C09f 1/02

U.S. Cl. 260—428 **8 Claims**

Fatty material such as tallow contaminated by synthetic polymeric impurities such as polyethylene is purified by adjusting the temperature to above the melting point of the fatty material but not above about 95°C, thereby rendering the impurities insoluble in the fatty material, and separating such insoluble materials.

ERRATUM

For Class 260—429 see:
Patent No. 3,758,341

3,758,534

PRODUCTION OF METAL CHELATES

Felix B. Popper, and Albert H. Levesque, both of Nashua, N.H., assignors to W. R. Grace & Co., New York, N.Y.

Division of Ser. No. 81,177, Oct. 15, 1970, Pat. No. 3,644,444, which is a continuation-in-part of Ser. No. 740,488, June 27, 1968, abandoned. This application Sept. 15, 1971, Ser. No. 180,836

Int. Cl. C07f 3/00, 15/00

U.S. Cl. 260—429 J **7 Claims**

An alkali metal salt of a polyvalent metal chelate of a chelating aminoacetic acid is formed by:

1. Boiling a mixture of; (a) water; (b) an amine precursor of the said acid; (c) formaldehyde; (d) a cyanide of the polyvalent metal; and (e) an alkali metal cyanide, and adding thereto the chelating aminoacetic acid in its free form to react with unreacted polyvalent metal cyanide
2. Boiling a mixture of; (a) water; (b) an amine precursor of the said acid; (c) formaldehyde; (d) a polyvalent metal hydroxide or oxide; (e) an an alkali metal hydroxide; and (f) hydrogen cyanide and adding thereto the chelating aminoacetic acid in its free form to react with unreacted polyvalent metal hydroxide or oxide.

3,758,535

PROCESS OF REACTING A SILICON COMPOUND WITH A TITANIUM COMPOUND

Luis Vizurraga, Charlotte, N.C., assignor to Fiber Industries, Inc., Charlotte, N.C.

Continuation-in-part of Ser. No. 879,618, Nov. 24, 1969, abandoned. This application Nov. 2, 1970, Ser. No. 86,302

Int. Cl. C07f 7/28

U.S. Cl. 260—429.5 **6 Claims**

There is provided an improved polymerization catalyst which is the product of the process of reacting a first compound of the formula

with a second compound of the formula

wherein:

1. M is selected from the group consisting of titanium, zirconium, germanium, silicon, antimony, lead, and tin;
2. R_2 and R_4 are selected from the group consisting of chlorine and hydroxy;
3. the remaining R substituents are selected from the group consisting of alkyl of 1 to about 18 carbon atoms, acyl of 1 to about 18 carbon atoms, alkoxy of 1 to about 18 carbon atoms, aryl of 6 to about 18 carbon atoms, aryloxy of 6 to about 18 carbon atoms, and hydrogen, provided that at least one of R_3, R_6, R_7, and R_8 is not hydrogen; and
4. in said reaction from about 1.1 to about 20 moles of said second compound per mole of said first compound are reacted for from about 2 to about 6 hours.

This catalyst is especially useful for the preparation of polyesters particularly linear fiber-forming polyesters.

3,758,536

PROCESS FOR PREPARING POLYMERIC HALO TIN THIOHYDROCARBYL CARBOXYLATES

Anatole Wowk, Edison, N.J., assignor to M & T Chemicals Inc., Greenwich, Conn.

Continuation-in-part of Ser. No. 43,230, June 3, 1970, abandoned. This application July 16, 1971, Ser. No. 163,452

Int. Cl. C07f 7/22

U.S. Cl. 260—429.7 **3 Claims**

This invention relates to novel compounds, oligomers, and polymers exhibiting at least one direct carbon to tin bond, at least one direct halogen to tin bond, at least one direct oxygen to tin bond, and at least one direct sulfur to tin bond, methods of preparing these novel compounds, and to polymers stabilized against the deteriorative effects of heat and light by two component compositions comprised at least in part of the novel compounds of this invention.

3,758,537

BIS[HYDROCARBYL(HALO)(MERCAPTO)TIN]OXIDE

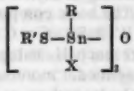
Anatole Wowk, Edison, N.J., assignor to M & T Chemicals Inc., New York, N.Y.

Division of Ser. No. 43,231, June 3, 1970, abandoned. This application June 24, 1971, Ser. No. 156,527

Int. Cl. C07f 7/22

U.S. Cl. 260—429.7 **8 Claims**

This invention comprises novel compounds of the formula:



wherein R and R′ are hydrocarbons and X is halogen, methods of preparing these novel compounds, and polymers stabilized by these novel compounds against the deteriorative effects of heat and light.

3,758,538

$(CF_3)_2CFO^-AG^+$

Morton H. Litt, and Francis W. Evans, both of Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Division of Ser. No. 492,276, Oct. 1, 1965, Pat. No. 3,453,333. This application Sept. 3, 1968, Ser. No. 778,887
Int. Cl. C07f 1/10
U.S. Cl. 260—430 1 Claim

This invention relates to novel salts which are prepared by the reaction of a fluorine-containing perhalogenated ketone with a compound selected from the group consisting of potassium fluoride, silver fluoride, cesium fluoride, rubidium fluoride and tetraalkylammonium fluoride. These salts are useful for the preparation of fluorinated ethers which can be employed in the preparation of surfactants.

3,758,539

OFFRETITE SYNTHESIS FROM MINERALS

William H. Flank, Broomall, Pa., assignor to Air Products and Chemicals Inc., Philadelphia, Pa.

Filed Mar. 9, 1971, Ser. No. 122,553
Int. Cl. B01j 11/40
U.S. Cl. 252—455 Z 3 Claims

A synthetic offretite having a capacity for sorbing benzene and other large molecules is prepared from an aqueous nutrient containing tetramethyl ammonium hydroxide, potassium hydroxide, and a suitable mixture of reactive aluminosilicate minerals, usually comprising sorptive silica.

3,758,540

FERRIC CHELATES OF N-(2-HYDROXYBENZYL) SUBSTITUTED AMINOPOLY CARBOXYLIC ACIDS

Arthur E. Martell, 1211 Orr St., College Station, Tex.

Continuation-in-part of Ser. No. 705,005, Feb. 13, 1968, Pat. No. 3,632,637. This application Oct. 9, 1970, Ser. No. 79,695
Int. Cl. C07f 15/02; C07c 101/72
U.S. Cl. 260—439 R 3 Claims

Soluble iron (III) chelates of N-(2-hydroxybenzyl) substituted aminopolycarboxylic acid ligands useful in plant nutrition as a source of iron.

3,758,541

ORGANOSILICON COMPOUNDS

Grish Chandra; William John Owen, both of Renarth; Norman Cecil Lloyd, Radyr, and Bryan Ewart Cooper, Bridgend, all of Wales, assignors to Midland Silicones Limited, Reading, Berkshire, England

Division of Ser. No. 59,701, July 30, 1970, Pat. No. 3,699,140. This application May 19, 1972, Ser. No. 254,983
Int. Cl. C07f 7/08, 7/18
U.S. Cl. 260—448.2 Q 5 Claims

Organosilicon compounds, polymers and copolymers have been prepared containing acetylenic linkages between adjacent silicon atoms. The basic compounds are defined by the general formula $R'(R_2Si)_n(C{\equiv}C)—(C{\equiv}C)(SiR_2)_nR''$ where R′ and R″ are each H, halogen, hydrocarbonoxy or $—NO_2$ as above defined, monovalent hydrocarbon or monovalent halogenohydrocarbon, *m* is 1 to 4, *n* is 0 to 4, R″ being H, alkyl, aryl or trihydrocarbylsilyl when *n* is 0. The polymers can be defined by the unit formula $(OSiR_2—C{\equiv}C—C{\equiv}C—SiR_2—)$ and may be copolymers containing units of the formula $Q_aSiO_{4-a}/2$ where Q is monovalent hydrocarbon or halogenohydrocarbon and *a* is 0 to 3.

3,758,542

PROCESS OF MAKING SILYL ESTERS OF PROSLAGLANDIN E_2

William P. Schneider, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed July 2, 1971, Ser. No. 159,489
Int. Cl. C07f 7/18
U.S. Cl. 260—448.8 R 9 Claims

Reductive ring-opening of a salt form of certain epoxide intermediates using amalgamated aluminum metal and a hydrolytic solvent yields prostaglandin E_2-type products. The products have pharmacological utility.

3,758,543

NOVEL SULFATES AND METHOD FOR THEIR PREPARATION

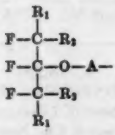
Louis G. Anello, Basking Ridge, and Richard F. Sweeney, Randolph Twp., Morris Cty., both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Apr. 25, 1967, Ser. No. 633,368
Int. Cl. C07c 141/02
U.S. Cl. 260—458 14 Claims

Novel sulfate compounds of the formula:

$R\text{-}(C)_m\text{-}(D)_n\text{-}(CH_2)_r\text{-}(OSO_2)_u\text{-}O\text{-}(CH_2)_r\text{-}(D)_n\text{-}(C)_m\text{-}R$

wherein R is a polyhaloisoalkoxyalkyl group having the formula:

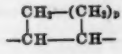


wherein:

a. R_1 and R_2 are F, Cl, alkyl or haloalkyl groups or, when taken together, are alkylene or haloalkylene groups forming a cycloaliphatic structure, which R_1 and R_2 groups may each have from 1 to 9 carbon atoms and which halogen atoms, if any, have an atomic weight not exceeding about 79.92, with the proviso that no more than two of the four R_1 and R_2 groups are alkyl groups and

b. A is a member selected from the group consisting of radicals of the formulae:

$—CHR_3—CHR_4—$, $CFR_5—CR_6R_7—$ and



wherein R_3 and R_4 are independently selected from the group consisting of Cl, H and alkyl; R_5 and R_6 are independently selected from the group consisting of F and H; R_7 is selected from the group consisting of F, H, Cl, Br and perfluoroalkyl; *p* is an integer of from 1 to 9; with the proviso that when both R_6 and R_7 are F, R_5 is always F,

and wherein C is a bifunctional group which may be derived from a telomerizable acetylenically or ethylenically unsaturated compound, *m* is an integer from 0-75, D is a bifunctional group which may be derived from a telomerizable acetylenically or ethylenically unsaturated compound, *n* is an integer from 0–75, *u* is an integer of from 1–6 and *v* is an integer of from 0–1; with the proviso that each carbon atom which is directly bonded to the $—(OSO_2)_u—O—$ moiety, contains at

least one hydrogen atom, are prepared by reacting a polyhaloisoalkoxyalkyl halide corresponding to the general formula:

$$R-(C)_m-(D)_n-(CH_2)_r-E$$

wherein R, C, D, m, n and v are each above defined and where E is a bromine atom or an iodine atom, with sulfur trioxide in at least about the stoichiometric proportions for the reaction.

The novel polysulfate compounds of the invention may be esterified, with an acrylic reagent, to the corresponding polyhaloisoalkoxyalkyl acrylate which in turn may be polymerized to produce useful oil, water and stain repellent agents.

The novel polysulfate compounds of the invention may also be hydrolyzed to the corresponding polyhaloisoalkoxyalkyl alcohols which in turn may be esterified and polymerized to the polyacrylate oil, water and stain repellent agents mentioned above. The alcohols may also be used to prepare useful surfactants.

The novel monosulfate compounds of the invention may be converted to the novel polysulfate compounds of the invention by reaction with SO_3.

3,758,544

2-HYDROXY-2(6'-METHOXYNAPHTH-2'- YL) PROPIONITRILE AND 5'-HALO DERIVATIVES THEREOF

Francisco Sanchez Alvarez, Sunnyvale, Calif., assignor to Syntex Corporation, Panama, Panama

Division of Ser. No. 748,603, July 30, 1968, Pat. No. 3,637,767. This application June 10, 1971, Ser. No. 151,921

Int. Cl. C07c *121/66*

U.S. Cl. 260—465 F **1 Claim**

New compounds, 2-(6'-methoxynaphth-2'-yl)-propylene oxide, 2-(6'-methoxynaphth-2'-yl)pro-pionaldoxime, 2-hydroxy-2-(6'-methoxynaphth-2'-yl)-propionitrile, 2-(6'-methoxynaphth-2'-yl)acrylo-nitrile, 2-(6'-methoxynaphth-2'-yl)acrylic acid, the corresponding 5'-halo compounds and 2-(5'-halo-6'-methoxynaphth-2'-yl) propionaldehyde are useful intermediates in producing 2-(6'-methoxy-naphth-2'-yl) propionic acid and the corresponding 5'-halo acids from 6-methoxy-2-acetylnaphthalene and the corresponding 5-halo compounds. The 2-propionic acids are anti-inflammatory, analgesic, anti-pyretic and anti-pruritic agents. The 2-propionaldehydes, obtained from the 2-acetyl compounds by way of the 2-propylene oxide, can be converted directly to the 2-propionic acids by way of the 2-propionaldoximes and the 2-propio-nitriles or more directly by Jones oxidation. Alternatively the 2-acrylonitriles, obtained from the 2-acetyl compounds by way of the 2-hydroxy-2-propionitrile, can be converted to the 2-propionic acid by way of the 2-acrylic acid or 2-propionitrile.

3,758,545

PURIFICATION OF ADIPONITRILE

Maurice George Pounder, and Kenneth Ross Wilkins, both of Kingston, Ontario, Canada, assignors to Du Pont of Canada Limited, Montreal, Quebec, Canada

Filed Oct. 12, 1971, Ser. No. 188,578

Claims priority, application Canada, Oct. 15, 1970, 095,669

Int. Cl. C07c *121/26*

U.S. Cl. 260—465.8 R **3 Claims**

A process for the purification of adiponitrile wherein adiponitrile containing impurities is treated with a polymer of formaldehyde, such as paraformaldehyde, containing from about six to about one hundred formaldehyde units, to reduce the level of impurities. The treatment can be carried out at a temperature in the range of 50 to 100°C.

3,758,546

METHOXY AMINE DERIVATIVES AND PROCESS FOR PREPARING THEM

Endre Kasztreiner; Laszlo Vargha; Zsuzsanna Huszti; Jozsef Borsi; Geza Szilagyi; Judit Szakaly; Sandor Elek, and Istvan Polgari, all of Budapest, Hungary, assignors to Gyogyszerkutato Intezet, Budapest, Hungary

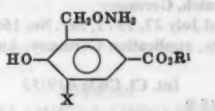
Filed June 3, 1971, Ser. No. 149,789

Claims priority, application Hungary, Dec. 14, 1970, GO1152

Int. Cl. C07c *101/42*

U.S. Cl. 260—471 R **4 Claims**

New substituted methoxy amines of the general formula I



(I)

wherein R^1 stands for a methyl or ethyl group, and X is a hydrogen atom or an OH group, and their pharmaceutically acceptable acid addition salts.

The new compounds considerably inhibit the specific (histidine-) and non-specific (DOPA-) decarboxylase and have a low toxicity.

3,758,547

PROCESS OF REACTING A BENZOIC ACID WITH AMINO ALCOHOL

Michael Robin, Colonia; Sheldon R. Schulte, Highland Park, both of N.J., assignors to Ashland Oil, Inc., Houston, Tex.

Filed Feb. 2, 1970, Ser. No. 8,001

Int. Cl. C07c *79/46, 93/20*

U.S. Cl. 260—472 **33 Claims**

An improved process for reacting a benzoic acid with an amino alcohol by the use of certain catalysts.

3,758,548

LIQUID ESTERS OF NAPHTHALENE DICARBOXYLIC ACIDS

Robert H. Reitsema, Denver, Colo., and Nylen L. Allphin, Jr., Pinole, Calif., assignors to Marathon Oil Company, Findlay, Ohio

Continuation-in-part of Ser. No. 544,419, April 22, 1966, Pat. No. 3,624,133, which is a continuation-in-part of Ser. No. 292,495, July 2, 1963, abandoned, which is a continuation-in-part of Ser. No. 144,527, Oct. 12, 1961, abandoned. This application Oct. 7, 1971, Ser. No. 188,690

Int. Cl. C07c *69/76*

U.S. Cl. 260—475 FR **1 Claim**

The present invention comprises esters selected from the group consisting of esters of 1,6-naphthalene dicarboxylic acid and an aliphatic hydrocarbon alcohol having 4-8 carbon atoms; esters of 2,3-naphthalene dicarboxylic acid and an aliphatic hydrocarbon alcohol containing 5-8 carbon atoms; and esters of a naphthalene dicarboxylic acid and a branch chain alkane alcohol having at least 2 carbon atoms in the branch when the branch is closer to the hydroxyl-substituted carbon atom than the gamma position.

3,758,549

POLY ALKANOL ESTERS OF ALKYLTHIO-ALKANOIC ACIDS

Martin Dexter, Briarcliff Manor, and David Steinberg, Bronx, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,436

Int. Cl. 260 *45.85*; C07c *149/20*

U.S. Cl. 260—481 R **3 Claims**

Alkyl esters derived from alkylthioalkanoic acids and alkane polyols are stabilizers of organic material normally sub-

ject to thermal and oxidative deterioration. They are prepared by conventional esterification techniques. Typical embodiments are pentearythritol tetrakis (3-n-dodecylthiopropionate) and ethylene bis (3-n-didecylthiopropionate). The esters are used in conjunction with phenolic antioxidants to effectively stabilize organic materials from the deliterious effects of heat and oxygen.

3,758,550

PROCESS FOR PRODUCING METHYLENE MALONIC ESTERS

Herbert Eck; Josef Heckmaier, and Hellmuth Spes, all of Burghausen-Obb., Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany

Filed July 27, 1971, Ser. No. 166,571

Claims priority, application Germany, Aug. 27, 1970, P 20 42 610.2

Int. Cl. C07c *619/52*

U.S. Cl. 260—485 R **2 Claims**

A process for producing methylene malonic esters of the general formula $CH_2{=}\ C(-CO_2R)_2$, where R represents a branched or unbranched aliphatic residue of one to six C atoms, which comprises reacting a malonic ester of the general formula $CH_2(-CO_2R)_2$ dissolved in glacial acetic acid, where R has the meaning mentioned above, with paraformaldehyde in the presence of a catalyst at temperature stages between 0°C and the boiling point of the mixture, distilling off the solvent, and cracking the resulting product, in which process the reaction mixture contains 0.5 – 1.5 mol percent of acetic acid anhydride referred to the malonic ester.

3,758,551

PROCESS FOR THE PREPARATION OF ACRYLATE AND METHACRYLATE ESTERS

Jawad H. Murib; Charles E. Frank, and Ben Seeskin, all of Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 99,251, Dec. 17, 1970, abandoned. This application Nov. 10, 1971, Ser. No. 197,523

Int. Cl. C07c *69/54*

U.S. Cl. 260—486 R **12 Claims**

Process for the preparation of acrylate or methacrylate esters involving the reaction of propylene or isobutylene with a primary alcohol and molecular oxygen in the vapor phase at temperatures of up to 250° C. and in the presence of a catalyst composition containing phosphoric acid and a catalytically effective amount of palladium metal. The acrylate or methacrylate esters are selectively produced in the single step vapor phase oxidation.

3,758,552

DERIVATIVES OF THE 2-(LOWER ALKYL)-3-(LOWER ALKYL)-4-ARYL-3- OR 4-CYC LOHEXENECARBINOLA

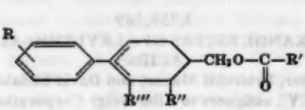
George Karmas, Bound Brook, N.J., assignor to Ortho Pharmaceutical Corporation, Raritan, N.J.

Division of Ser. No. 728,900, May 14, 1968, Pat. No. 3,557,129. This application Sept. 14, 1970, Ser. No. 72,222

Int. Cl. C07c *69/40, 103/14*

U.S. Cl. 260—482 R **5 Claims**

Compounds of the general formula



are disclosed wherein -R is selected from the group consisting of hydrogen, hydroxy, lower alkoxy of up to eight carbon atoms, lower alkyl of up to eight carbon atoms, and lower alkyl anilino of up to four carbon atoms; —R′ is selected from the group cinsisting of alkyl and alkenyl of up to 20 carbon atoms, cycloalkyl lower alkyl of up to three carbon atoms in the alkyl portion, adamanthyl, pyridyl, furyl, lower alkyl carboxylic acids and their alkali metal salts, esters and carbamates; and R″ and R‴ are selected from the group consisting of lower alkyl of up to three carbon atoms. These compounds exhibit estrogenic properties and when given in a single subcutaneous dose have long acting effects in the suppression of animal reproduction.

3,758,553

PROCESS FOR THE PREPARATION OF B-FORMYLAMINOPROPIONIC ACID ESTERS

Hans Dieter Winkelmann, Opladen; Friedrich Karl Rosendahl, Leverkusen; Harald Oertel, Odenthal-Gloebusch, and Heinrich Rinke, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 28, 1971, Ser. No. 110,747

Claims priority, application Germany, Feb. 3, 1970, P 20 04 698.4

Int. Cl. C07c *101/04*

U.S. Cl. 260—482 R **14 Claims**

This invention relates to a process for the production of β-formylaminopropionic acid esters by reacting formamide with acrylic acid esters in the presence of a basic catalyst at normal pressure and at a relatively low temperature. The β-formylaminopropionic acid esters produced in accordance with the invention are valuable intermediate products for the production of derivatives of β-alanine and for the production of β-alanine itself, both of which are of pharmaceutical interest or may be used as starting materials in the making of polyamides or polyurethanes.

3,758,554

PHOSPHORUS-CONTAINING CARBAMATES

Bernard J. Gaj, Montclair, and Stephen B. Sello, Cedar Grove, both of N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

Filed June 18, 1971, Ser. No. 154,690

Int. Cl. C07c *125/06*

U.S. Cl. 260—482 B **3 Claims**

This invention relates to phosphorus-containing carbamates having at least one N-methylol or N-alkoxymethyl group. These compounds can be used to impart durable flame-retardant properties to cellulose-containing substrates.

3,758,555

DIFLUOROAMINO COMPOUNDS

Robert J. Koshar, Lincoln Township, Washington County; Donald R. Husted, St. Paul; Charles D. Wright, White Bear Lake, and Joseph La Mar Zollinger, Woodbury Township, Washington County, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 8, 1965, Ser. No. 425,113

Int. Cl. C07c *101/00*

U.S. Cl. 260—482 R **7 Claims**

1. A compound of the formula

$$R_s{-}C(NF_2)_3$$

wherein R_s is a member of the group consisting of polyfluoroalkyl radicals of fron one to 18 carbon atoms and hydrocarbon radicals having from one to 30 carbon atoms, said radicals being free from reducing substitutents.

3,758,556

POLYESTERS CONTAINING TERTIARY NITROGEN ATOMS

Erich Eimers, Krefeld; Hans Rudolph, and Werner Kloker, both of Krefeld-Bockum, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 64,822, Aug. 18, 1970, Pat. No. 3,646,160. This application Oct. 28, 1971, Ser. No. 193,553

Claims priority, application Germany, Aug. 29, 1969, P 19 43 954.4

Int. Cl. C07c *69/44*

U.S. Cl. 260—485 G 2 Claims

The invention relates to novel linear polyesters containing hydroxy end groups and an N,N-bis-(β-sec.hydroxy-alkyl)-p-alkylphenylamine and certain dicarboxylic acids condensed therein. These novel polyesters are useful as accelerators for mixtures of unsaturated polyesters and copolymerizable monomers which harden at room temperature after the addition of a diacyl peroxide catalyst.

3,758,557

PROCESS FOR THE OXIDATION OF PARAFFINS

Pierre M. J. G. De Radzitzky d'Ostrowick; Jacques D. V. Hanotier, and Joseph M. E. Vaerman, all of Bruxelles, Belgium, assignors to Labofina, Soc. An., Bruxelles, Belgium

Filed July 24, 1969, Ser. No. 844,616

Int. Cl. C07c *27/16, 45/02, 67/00*

U.S. Cl. 260—488 F 11 Claims

Straight-chain paraffins are non-destructively and selectively oxidized to introduce oxy and oxo functions predominantly at the 2 position by an oxidizing system comprising a compound of group II – VI metals in higher valent form and an acidic activator of dissociation constant gerater than 5.10^{-3} or boron trifluoride, with or without molecular oxygen and with or without a solvent.

3,758,558

ORTHO-DIPHENYLPHOSPHINOBENZOIC ACID PRODUCTION

Ronald F. Mason, Mill Valley, and Gordon E. Wicker, Orinda, both of Calif., assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 13, 1972, Ser. No. 217,635

Int. Cl. C07c *63/44*

U.S. Cl. 260—515 M 6 Claims

Ortho-dihydrocarbylphosphinobenzoic acids are produced in high yield substantially free of the corresponding meta-isomer by substantially immediate intimate contacting of sodium dihydrocarbyl phosphide and phenyl sodium with an ortho-chlorobenzoate in an inert solvent solution to produce the sodium salt of o-dihydrocarbylphosphinobenzoic acid, which is thereafter converted to the free acid by treatment with mineral acid.

3,758,559

RESOLUTION OF DL-α-METHYLPHENYLALANINE

Frederick W. Bollinger, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 30, 1970, Ser. No. 7,261

Int. Cl. C07c *101/08*

U.S. Cl. 260—518 R 1 Claim

DL-α-methylphenylalanine is resolved by the cinchonine and cinchonidine salts to give pure D(+) and L(−) isomers. This resolution results in the isolation of the pharmacological properties exhibited by the DL mixture and further shows a reduction of undesirable side effects.

3,758,560

N-ACYL-α-HYDRAZINO-HYDROCINNAMIC ACID AND DERIVATIVES

Sandor Karady, Elizabeth; Seemon H. Pines, Murray Hill; Manuel G. Ly, New Brunswick, and Meyer Sletzinger, North Plainfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 9,052, Feb. 5, 1970, Pat. No. 3,715,382. This application June 24, 1971, Ser. No. 156,547

Int. Cl. C07c *101/72, 101/78*

U.S. Cl. 260—519 5 Claims

Diastereomers of N-acyl α-hydrazino-β-(substituted or unsubstituted phenyl)alkanoic acid derivatives which can be separated and hydrolyzed to give compounds useful as decarboxylase inhibitors.

3,758,561

2-LOWERALKYLAMINO-4-AMINO BENZOIC ACIDS, THEIR SALTS AND ESTERS, AND ACID ADDITION SALTS THEREOF

Edward F. Rogers, Middletown, and Robert L. Clark, Woodbridge, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 768,933, Oct. 18, 1968, Pat. No. 3,560,624. This application Apr. 3, 1970, Ser. No. 29,379

Int. Cl. C07c *101/68*

U.S. Cl. 260—518 R 2 Claims

The 2-loweralkylamino-4-amino benzoic acids are prepared by catalytic hydrogenation of 2-loweralkylamino-4-nitrobenzoic acid. These compounds, as well as their loweralkyl esters, alkaline metal or alkaline metal earth salts, and the non-toxic acid addition salts thereof are useful for controlling coccidiosis.

3,758,562

HYDROXYLATION OF AROMATIC ACIDS

Jerome A. Vesley, Park Ridge, and George L. Hervert, Woodstock, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Sept. 29, 1969, Ser. No. 862,006

Int. Cl. C07c *65/02*

U.S. Cl. 260—520 8 Claims

The nuclear hydroxylation of a nuclearly substituted aromatic acid is accomplished by treating the acid with hydrogen perioxide in the presence of a catalyst comprising a hydrogen fluoride-carbon dioxide complex at a temperature in the range of from about −10° to about 100°C. and a pressure in the range of from about ambient to about 100 atmospheres.

3,758,563

PROCESS FOR PRODUCING GRANULAR POTASSIUM SORBATE

Eiji Uematsu; Katuharu Nakada, and Toshihumi Arakawa, all of Niigata, Japan, assignors to Daicel Ltd., Osaka, Japan

Filed June 21, 1967, Ser. No. 647,663

Claims priority, application Japan, June 22, 1966, 41/40523

Int. Cl. C07c *51/00*

U.S. Cl. 260—526 N 8 Claims

A granular potassium sorbate, for use as a food and drink preserving material, which is higher than powdery potassium sorbate in apparent specific gravity, is very easily soluble and is sufficiently hard as not to break in handling. A process for producing the above-mentioned granular potassium sorbate by properly wetting powdery potassium sorbate with water alone or with a mixture of water and an organic solvent, molding it with particular types of extruding granulators under proper conditions and drying it.

3,758,564

PROCESS FOR PREPARATION OF STRAIGHT CHAIN ALKANE DICARBOXYLIC ACIDS

Darwin Darrell Davis, Victoria, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 8, 1971, Ser. No. 160,757
Int. Cl. C07c *55/02, 55/14, 51/18*
U.S. Cl. 260—531 R 4 Claims

A process for preparation of a $C_8 - C_{12}$ dicarboxylic acid in high purity by oxidizing a cyclic ketone or alcohol or a mixture thereof in a reactor with aqueous nitric acid, with all reactants in the liquid phase, holding the substantially oxidized ketone or alcohol under oxidizing conditions to oxidize and remove undesired by-products, recovering the dicarboxylic acid from the nitric acid mother liquor which contains a minor amount of urea and/or ammonia and thereafter adding at least a stoichiometric amount of nitrous acid to the mother liquor and returning the mother liquor to the reactor.

3,758,565

PROCESS FOR PREPARING CRYSTALLINE SODIUM NITRILOACETIC ACID

Robert B. Agee, Baker, and William R. Cooke, Baton Rouge, both of La., assignors to Ethyl Corporation, Richmond, Va.

Filed Dec. 7, 1970, Ser. No. 95,540
Int. Cl. C07c *101/20*
U.S. Cl. 260—534 E 14 Claims

It is disclosed that the particle size distribution of crystalline sodium nitrilotriacetate (NTA) can be controlled to achieve a desired bulk density of the product and to provide a product that centrifuges readily. The control is obtained by conducting the crystallization and/or crystal growth of NTA in the presence of a centrifugal impeller operative at a peripheral velocity of from about 20 to about 80 feet per second whereby the crystals are selectively abraded or fractured to limit growth of the periphery of the crystals enhancing the relative growth rate of the crystals in the thickness dimension.

3,758,566

REMOVAL OF IRON IMPURITIES

Glenn Edward Organ, Bay City, Tex., assignor to Celanese Corporation, New York, N.Y.

Filed Apr. 21, 1971, Ser. No. 136,195
Int. Cl. C07c *55/14*
U.S. Cl. 260—531 R 9 Claims

Iron impurities are removed from an aqueous nitric acid solution containing copper and vanadium catalyst ions by solvent extraction with an organic solution of an organophosphate prior to passing the aqueous nitric acid solution through an ion exchange zone for recovery of the copper and vanadium.

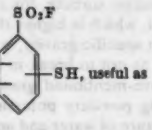
3,758,567

FLUOROSULFONATED THIOPENOLS AND METHOD OF PREPARATION

Ivan Christoff Popoff, Ambler, and Chandrakant Bhagwandas Thanawalla, Norristown, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed June 21, 1971, Ser. No. 155,360
Int. Cl. C07c *149/40, 149/42, 149/39*
U.S. Cl. 260—543 F 11 Claims

A fluorosulfonated thiophenol



a plant response agent, and a process for its preparation are provided.

3,758,568

OXAMOYL SULFENYL CHLORIDES

Wendell Gary Phillips, Olivette, Mo., assignor to Monsanto Company, Saint Louis, Mo.

Filed Sept. 1, 1971, Ser. No. 177,096
Int. Cl. C07c *145/00*; C07d *29/34*
U.S. Cl. 260—543 H 15 Claims

Oxamoyl sulfenyl chlorides are prepared from dichloromethane sulfenyl chlorides by reaction with sulfuric acid and water. The oxamoyl sulfenyl chlorides are pesticidally active and particularly useful as pre-emergent herbicides.

3,758,569

PREPARATION OF MONOHALOACETYL HALIDES

Donald E. Bissing, and Virgil W. Gash, both of Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 185,449, Sept. 30, 1971, abandoned. This application Aug. 4, 1972, Ser. No. 277,960
Int. Cl. C07c *51/58, 53/14, 63/10*
U.S. Cl. 260—544 Y 18 Claims

A process for the preparation of monohaloacyl halides by halogenating ketenes in the presence of a lactone.

3,758,570

PROCESS FOR THE PRODUCTION OF ACYLISOCYANIDE DICHLORIDES AND CARBOXYLIC ACID CHLORIDES

Kurt Findeisen, and Kuno Wagner, both of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed July 19, 1971, Ser. No. 164,038
Claims priority, application Germany, July 21, 1970, P 20 36 171.1
Int. Cl. C07c *51/58*
U.S. Cl. 260—544 C 9 Claims

Acylisocyanide dichlorides and carboxylic acid chlorides are obtained by reacting a carboxylic acid anhydride and an isocyanide dichloride in the presence of a Lewis acid at a temperature of from 0° to 300° C.

3,758,571

PREPARATION OF MONOHALOACETYL HALIDES

Donald E. Bissing, and Virgil W. Gash, both of Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 192,647, Oct. 26, 1971, abandoned. This application Aug. 4, 1972, Ser. No. 277,961
Int. Cl. C07c *53/14, 51/58*
U.S. Cl. 260—544 Y 15 Claims

A process for the preparation of monohaloacyl halides by halogenating ketenes in the presence of an alicyclic carbonate.

3,758,572

PROCESS FOR RECOVERING UREA FROM PYROLYSIS SYSTEMS

Irby C. Jones, Jr., and Aubrey J. Rhymes, Jr., both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 26, 1971, Ser. No. 137,208
Int. Cl. C07c *127/24*
U.S. Cl. 260—553 B 4 Claims

In a process of pyrolyzing urea in a reactor system through which a stream of inert gas is passed to accelerate the rate of pyrolysis by purging evolved ammonia therefrom, an improved method for recovering unreacted vaporized urea also purged by the gas stream with the ammonia which comprises passing the condensable vapors of an inert compound through the reactor (s), cooling the purged ammonia and urea containing vapor mixture to a temperature low enough to condense

the vapors of the inert compound thereby minimizing the concentration of this component in the vapor mixture, but high enough to preclude urea condensation, feeding the resulting concentrated vapor mixture to a gas/liquid contacting column and contacting the same with fresh urea melt feedstock, thereby condensing a substantial amount of the urea vapor contacted, feeding the condensed urea along with the urea melt feedstock to the pyrolysis reactor(s), and passing the urea depleted effluent vapor mixture to a conventional ammonia recovery unit.

3,758,573

N-(HALOALKYL)-BENZENE AND PARA-TOLUENE SULFORAMIDES

Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne-sur-Seine, both of France, assignors to L'Oreal, S.A., Paris, France

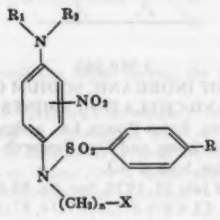
Continuation-in-part of Ser. Nos. 568,148, July 27, 1966, abandoned, and Ser. No. 568,118, July 27, 1966, abandoned, and Ser. No. 607,898, Jan. 9, 1967, Pat. No. 3,617,163, and Ser. No. 798,192, Feb. 10, 1969, abandoned, and Ser. No. 862,614, Sept. 8, 1969, abandoned. This application June 20, 1972, Ser. No. 264,457

Claims priority, application Luxembourg, July 30, 1965, 49,213; Jan. 10, 1966, 50,233; June 24, 1966, 51,408; July 30, 1965, 49,214; Jan. 27, 1966, 50,348; Dec. 9, 1966, 52,555; July 4, 1966, 51,474

Int. Cl. C07c *143/78*

U.S. Cl. 260—556 AR **9 Claims**

Disubstituted N-halo-alkyl sulfonamide compounds suitable for use as intermediates for making hair dyes having the formula



wherein R is hydrogen or methyl, *n* is an integer from 2–6 inclusive, X is chlorine or bromine, R_1 is hydrogen or lower alkyl of 1–4 carbon atoms, R_2 is hydrogen, lower alkyl of 1–4 carbon atoms or acetyl, provided that R_2 is hydrogen and R_1 is lower alkyl when the NO_2 group is ortho to the NR_1R_2 group, and that R_2 is acetyl when the NO_2 group is meta of the NR_1R_2 group, are disclosed.

3,758,574

N-(ARALKYL) MALONAMIDE DERIVATIVES

Timothy Melton, Harlow, and David Edward Thorne, Crowthorne, both of England, assignors to Beecham Group Limited, Brentford, Middlesex, England

Filed Oct. 21, 1971, Ser. No. 191,540

Claims priority, application Great Britain, Oct. 22, 1970, 50,169/70

Int. Cl. C07c *103/32*

U.S. Cl. 260—558 A **18 Claims**

N-aralkyl-N′-alkylmalonamides and N-aralkyl-N′,N′-dialkyl-malonamides are useful as CNS depressants and anti-convulsants.

3,758,575

BROMINATION OF SALICYLANILIDE

Nathan N. Crounse, Cincinnati; Raymond E. Werner, Wyoming, and Harold L. Dimond, Evendale, all of Ohio, assignors to Sterling Drug Inc., New York, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,908

Int. Cl. C07c *103/20*

U.S. Cl. 260—559 S **15 Claims**

In the process for preparing 3,4′,5-tribromosalicylanilide by the interaction of bromine with salicylanilide, the use of an inert reaction medium consisting of chlorobenzene, water and a surface active agent provides 3,4′,5-tribromosalicylanilide essentially free of 4′,5-dibromosalicylanilide and 2′,3,4′,5-tetrabromosalicylanilide.

3,758,576

PROCESS FOR THE PREPARATION OF N,N-DIALKYLAMIDES

Yasunobu Takahashi, and Yohei Fukuoka, both of Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka-City, Osaka-Prefecture, Japan

Continuation of Ser. No. 735,591, June 10, 1968, abandoned. This application June 15, 1970, Ser. No. 48,877

Claims priority, application Japan, June 16, 1967, 42/38230; Aug. 15, 1967, 42/52081; Aug. 15, 1967, 42/52082; Nov. 16, 1967, 42/73364

Int. Cl. C07c *103/08*

U.S. Cl. 260—561 R **6 Claims**

N,N-dialkyl carboxylic acid amides are prepared by reacting a primary amine, second amine or tertiary amine, or a mixture thereof, with a nitrile at elevated temperatures and pressures, with or without the use of a catalyst.

3,758,577

STABILIZATION OF DIMETHYLFORMAMIDE

Kornelius Dinbergs, North Royalton, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,512

Int. Cl. C07c *103/00*

U.S. Cl. 260—561 R **2 Claims**

Dimethylformamide having certain alkyl halide compounds dissolved therein has an extended storage life before use as a solvent for polymers and resins in the manufacture of films, fibers and coatings and as an analytical solvent and does not require treatment with acidic ion exchange resin before use.

3,758,578

HYDRATION OF NITRILES TO AMIDES USING CUPREOUS CATALYSTS

Clarence E. Habermann, and Ben A. Tefertiller, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 835,765, June 23, 1971, Pat. No. 3,631,104. This application June 28, 1971, Ser. No. 157,648. The portion of the term of this patent subsequent to Dec. 28, 1988, has been disclaimed.

Int. Cl. C07c *103/00*

U.S. Cl. 260—561 N **10 Claims**

Aliphatic nitriles are converted to the corresponding amides by contacting the nitrile in the presence of water with a cupreous catalyst containing copper prepared by reducing copper hydroxide or a copper salt.

3,758,579

ALPHA-BROMOACRYLIC ACID TOLUIDIDES

Henry Martin, Basel, Switzerland, and Georg Pissiotas, Loerrach, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed July 27, 1971, Ser. No. 166,575

Claims priority, application Switzerland, July 31, 1970, 11589/70

Int. Cl. C07c *103/58*

U.S. Cl. 260—562 B 3 Claims

α-Bromo-acrylic-acid-anilides which are substituted in the phenyl nucleus by at least one substituent have been found to be effective compounds for influencing the plant development. They may be used for regulating fruit abscission.

3,758,580

SEPARATION OF TERTIARY CHELATING POLYAMINES

Arthur W. Lancer, Jr., Watchung; Thomas A. Whitney, Linden, and Lawrence P. Klemann, Somerville, all of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Nov. 26, 1971, Ser. No. 202,658

Int. Cl. C07c *85/16*

U.S. Cl. 260—563 R 7 Claims

Tertiary chelating polyamines are separated and purified from their complex mixtures by selective complexation with metal salts wherein the metal is one selected from the group consisting of sodium, magnesium, iron, zinc, cadmium and mercury. The pure polyamines are thereafter recovered by destabilization of the complex. This invention is particularly useful for separating N-peralkylated commercial polyamine mixtures.

3,758,581

PROCESS FOR THE MANUFACTURE OF KETONE DERIVATIVES

Robert Fuhrmann, Morris Plains; Stylianos Sifniades, Madison, and Allen Abraham Tunick, Denville, all of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 852,881, Aug. 25, 1969, abandoned. This application Mar. 24, 1972, Ser. No. 237,886

Int. Cl. C07c *131/02*

U.S. Cl. 260—566 A 2 Claims

The nitrosation of α-nitrocycloalkanones with alkyl nitrites, nitrogen oxides or nitrosyl halides is advantageously carried out utilizing liquid sulfur dioxide as a reaction solvent. Most advantageously, a strong acid catalyst is also present.

3,758,582

OXIME ETHER ANTI-DEPRESSANTS

John G. Moffatt, Los Altos, Calif., assignor to Syntex Corporation, Panama, Panama

Filed Aug. 14, 1970, Ser. No. 63,920

Int. Cl. C07c *131/00*

U.S. Cl. 260—566 AE 6 Claims

Compositions containing and methods employing novel alkylthioalkyl oxime ethers and the corresponding nitrones, useful as CNS agents, particularly anti-depressants. Methods for preparing these compounds and compositions are also disclosed. O-(Methylthiomethyl)-benzophenone oxime is illustrated as representative of the class.

3,758,583

2-(2-HYDROXY-3-AMINOPROPYL-1-YLOXY)-1,6-DILFUORO-AND-1,6-METHANO-[10]ANNULENES AND THE SALTS THEREOF

Peter H. Nelson; Karl G. Untch, both of Los Altos, and John H. Fried, Palo Alto, all of Calif., assignors to Syntex Corporation, Panama, Panama

Filed Jan. 21, 1971, Ser. No. 108,611

Int. Cl. C07c *93/06*

U.S. Cl. 260—570.7 20 Claims

Disclosed herein are certain 2-(2-hydroxy-3-amino or substituted aminoprop-1-yloxy)-1,6-methano- or -1,6-difluoromethano[10]annulene compounds and various ring substituted derivatives thereof. Methods for the preparation of these compounds and novel intermediates useful in these methods are also disclosed. The product compounds, described above, are useful β-adrenergic blocking agents. 2-(2-Hydroxy-3-isopropyl-aminoprop-1-yloxy)-1,6-methano[10]annulene and 2-(2-hydroxy-3-isopropylaminoprop-1-yloxy)-1,6-difluoromethano[10]annulene are illustrated as representative of the compound class.

3,758,584

HYDROGENATION OF ADIPONITRILE

Donald Bernard Bivens; Leo Wesley Patton, and William Erbie Thomas, Jr., all of Orange, Tex., assignors to E.I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 23, 1970, Ser. No. 101,167

Int. Cl. C07c *85/12*

U.S. Cl. 260—583 K 7 Claims

Process for the catalytic hydrogenation of adiponitrile to hexamethylenediamine at elevated temperatures and pressures in the presence of a catalyst derived from an iron or cobalt compound which has been activated in a mixture of hydrogen and ammonia at a temperature in the range of about 300° C. to about 600° C.

3,758,585

COMPLEXES OF INORGANIC SODIUM COMPOUNDS AND CHELATING AMINES

William M. Bunting, Baton Rouge, La., assignor to Arthur W. Langer, Jr., Watchung, and Esso Research and Engineering Company, Linden, both of N.J.

Filed July 27, 1970, Ser. No. 58,660

Int. Cl. C07c *87/20*, *87/34*, *87/54*

U.S. Cl. 260—583 P 6 Claims

Chelated inorganic sodium compounds are prepared by mixing an inorganic sodium salt having a lattice energy of not more than about 180 kcal/mole with an aliphatic or cycloaliphatic chelating agent having at least one functionality which is nitrogen and, separated therefrom by two to four carbon atoms, at least one other functionality which is either nitrogen or oxygen. Such compounds have utility as catalysts, as additives, in separations, in making batteries, and in synthetic chemistry.

3,758,586

CATALYTIC ADDITION OF SECONDARY ALIPHATIC AMINES TO ETHYLENE IN PRESENCE OF RHODIUM OR IRIDIUM SALTS

Dale Robert Coulson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 16, 1970, Ser. No. 20,146

Int. Cl. C07c *85/00*

U.S. Cl. 260—583 R 11 Claims

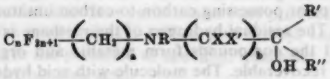
Ethylene is reacted with a secondary aliphatic amine in the presence of rhodium or iridium catalysts to produce tertiary amines. The process is characterized in producing little or no by-products.

3,758,587
NEW POLYFLUORINATED AMINOALCOHOLS

Louis Foulletier, Oullins, and Jean-Pierre Lalu, La Mulatiere, both of France, assignors to Ugine Kuhlmann, Paris, France

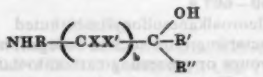
Filed Dec. 15, 1969, Ser. No. 885,257
Claims priority, application France, Dec. 17, 1968, 68178566
Int. Cl. C07c 91/06
U.S. Cl. 260—584 R 5 Claims

Polyfluorinated aminoalcohols having the following general formula:

(I) 

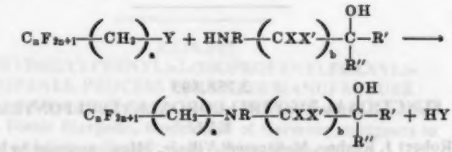
in which:

C_nF_{2n+1} represents a straight or branched perfluorinated hydrocarbon chain and in which *n* represents a whole number between one and 20; a is an even number of two or four; R represents a hydrogen atom, an alkyl radical containing from one to nine carbon atoms, a cycloalkyl radical containing from five to nine carbon atoms or an aryl radical containing from six to ten carbon atoms; X and X′ represent a hydrogen atom or an alkyl radical containing from one to four carbon atoms in which X and X′ can be identical or different; *b* is a whole number between one and four; R′ represents a hydrogen atom or an alkyl radical having one to four carbon atoms and R″ is an alkyl radical having from one to nine carbon atoms, and to a process for preparing the products of formula (I) which comprises reacting an amino-alcohol having the following general formula:

(II) 

with a polyfluoroalkane halide having the following general formula;

(III) $C_nF_{2n+1} + CH_2 +_a Y$ in which Y represents bromine or iodine and in which *n*, *a*, R, X, X′, *b*, R′, R″ correspond to the definitions given above at a temperature of between about 0° and 200° C in the presence of a solvent according to the following equation:

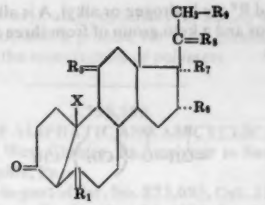
(IV) 

3,758,588
NEW A-NOR-B-HOMO-STEROIDS

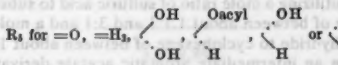
Oskar Jeger, and Kurt Schaffner, both of Zurich, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 382,643, July 14, 1964, Pat. No. 3,504,603, which is a continuation-in-part of Ser. No. 226,524, Feb. 3, 1963, abandoned. This application July 8, 1969, Ser. No. 840,025
Claims priority, application Switzerland, Mar. 23, 1962, 3533/62
Int. Cl. C07c 49/28
U.S. Cl. 260—586 H 8 Claims

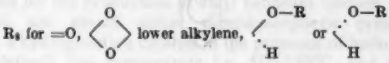
A-Nor-B-homo-steroids corresponding to the general formula



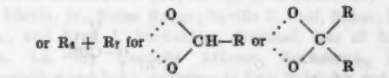
wherein X stands for hydrogen or methyl,
R_1 for H_2 or O

R_3 for =O, $=H_2$, 

R_6 for . . H, . . lower alkyl or . . OR
R_7 for . . H, . . lower alkyl or . . OR

R_8 for =O, 

R_9 for -H, -OR

or $R_8 + R_7$ for 

R being -H, an acyl group or a hydrocarbon radical.

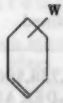
These compounds have progestative, anti-inflammatory and/or glucocorticoid action.

3,758,589
AROMATIZATION OF CYCLOHEXENE DERIVATIVES

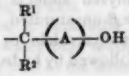
Mahmoud S. Kablaoui, c/o Texaco Inc. P.O. Box 509, Beacon, N.Y.

Filed Dec. 3, 1970, Ser. No. 94,995
Int. Cl. C07c 49/76
U.S. Cl. 260—590 6 Claims

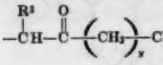
A method of aromatizing substituted cyclohexene to the corresponding aromatic compound comprising contacting a substituted cyclohexene of the formula:



where W is a monovalent radical selected from the group consisting of a hydroxyl group of from one to 10 carbons of the formula:

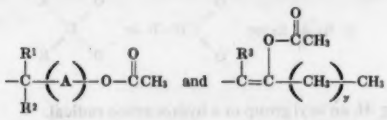


where R^1 and R^2 are hydrogen or alkyl, A is alkanediyl of from 0 to 9 carbons and a keto group of from three to 22 carbons of the formula:



where R^3 is hydrogen or alkyl of from one to 9 carbons and y is an integer of from 0 to 10 with a mixture of acetic anhydride and concentrated sulfuric acid optionally in the additional presence of acetic acid at a temperature between about 30 and 145°C. utilizing a mole ratio of sulfuric acid to substituted cyclohexene of between about 1.1:1 and 3:1 and a mole ratio of acetic anhydride to cyclohexene of between about 1:1 and 10:1 to form an intermediate aromatic acetate derivative of the formula:

where W' is a monovalent radical selected from the group consisting of



where R^1, R^2, R^3, A and y are as heretofore defined, and subsequently hydrolyzing said acetate derivative to form an aromatic compound of the formula:

where W is as heretofore defined.

3,758,590

HYDROLYZED DIELS-ALDER ADDUCTS OF OCIMENOL

James O. Bledsoe, Jr., and John M. Derfer, both of Jacksonville, Fla., assignors to SCM Corporation, Cleveland, Ohio

Filed Nov. 24, 1969, Ser. No. 879,578

Int. Cl. C07c *47/46*

U.S. Cl. 260—598 **4 Claims**

Hydrolyzed Diels Alder adducts of ocimenol have been synthesized and found to have good olfactory and perfumery properties. The hydrolyzed adducts are made by reacting ocimenol and an α,β-unsaturated carbonyl compound, preferably acrolein, methacrolein or crotonaldehyde, in a Diels-Alder reaction, followed by hydrolysis.

3,758,591

FUNCTIONAL BIS(PERFLOUROALKYLSULFONYL)ALKYL COMPOUNDS

Robert J. Koshar, Mahtomedi Village, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 807,408, March 14, 1969, Pat. No. 3,704,311. This application May 1, 1972, Ser. No. 249,116

Int. Cl. C07c *47/02*

U.S. Cl. 260—607 A **2 Claims**

Bis(perfluoroalkanesulfonyl)substituted methanes possessing reactible groups such as halogen, hydroxyl, carboxyl or ester groups or possessing carbon-to-carbon unsaturation are provided. The residual hydrogen of the methane is relatively acidic and the compounds form metallic and organic salts which are recoverable. The molecule with acid hydrogen can be further reacted by the reactible group to incorporate an acidic hydrogen in another molecule such as a polymer. The acid hydrogen effects absorption of basic vapors such as ammonia, amines, etc. Bis(perfluoroalkylsulfonyl) bromomethanes add to olefinic double bonds.

3,758,592

FUNCTIONAL BIS (PERFLUOROALKYLSULFONYL)ALKYL COMPOUNDS

Robert J. Koshar, Mahtomedi Village, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 807,408, March 14, 1969, Pat. No. 3,704,311. This application May 1, 1972, Ser. No. 249,117

Int. Cl. C07c *147/02*

U.S. Cl. 260—607 A **2 Claims**

Bis(perfluoroalkanesulfonyl)substituted methanes possessing reactable groups such as halogen, hydroxyl, carboxyl or ester groups or possessing carbon-to-carbon unsaturation are provided. The residual hydrogen of the methane is relatively acidic and the compounds form metallic and organic salts which are recoverable. The molecule with acid hydrogen can be further reacted by the reactible group to incorporate an acidic hydrogen in another molecule such as a polymer. The acidic hydrogen effects absorption of basic vapors such as ammonia, amines, etc. Bis(perfluoroalkylsulfonyl) bromomethanes add to olefinic double bonds.

3,758,593

FUNCTIONAL BIS(PERFLUOROALKYLSULFONYL)ALKYL

Robert J. Koshar, Mahtomedi Village, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 807,408, March 14, 1969, Pat. No. 3,704,311. This application May 1, 1972, Ser. No. 248,900

Int. Cl. C07c *147/02*

U.S. Cl. 260—607 A **2 Claims**

Bis(perfluoroalkanesulfonyl)substituted methanes possessing reactible groups such as halogen, hydroxyl, carboxyl or ester groups or possessing carbon-to-carbon unsaturation are provided. The residual hydrogen of the methane is relatively acidic and the compounds form metallic and organic salts which are recoverable. The molecule with acid hydrogen can be further reacted by the reactible group to incorporate an acidic hydrogen in another molecule such as a polymer. The acidic hydrogen effects absorption of basic vapors such as ammonia, amines, etc. Bis(perfluoroalkylsulfonyl) bromomethanes add to olefinic double bonds.

3,758,594

PROCESS FOR PRODUCING SULPHONIUM COMPOUNDS

Jan P. Campen; Ernest L. T. M. Spitzer; Wilhelmus A. A. Senden, and Jeffrey S. Hill, all of Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed Aug. 18, 1971, Ser. No. 172,908

Claims priority, application Great Britain, Aug. 26, 1970, 41,067/70

Int. Cl. C07c *149/46*

U.S. Cl. 260—607 B 6 Claims

Dialkyl-methyl sulfonium chlorides, having at least one alkyl group of at least four carbon atoms are produced by the reaction of a higher dialkyl sulfide with methyl chloride at 60°–100° C in the presence of specified quantities of hydrofluoric or hydrochloric acid.

3,758,595

DETERGENT

Vincent Lamberti, Upper Saddle River, N.J., and Henry Lamaire, Fairfield, Conn., assignors to Lever Brothers Company, New York, N.Y.

Continuation-in-part of Ser. No. 764,362, Aug. 7, 1968, Pat. No. 3,562,337, which is a division of Ser. No. 502,299, Oct. 22, 1965, Pat. No. 3,427,248. This application Feb. 5, 1971, Ser. No. 113,079

Int. Cl. C07c *149/14*

U.S. Cl. 260—609 R 3 Claims

This specification relates to a detergent. More particularly, it is concerned with a detergent which is a sulfur analog of a polyolether or polyolpolyether.

3,758,596

PROCESS FOR THE PRODUCTION OF PHENOLIC COMPOUNDS AND INTERMEDIATES FOR USE THEREIN

Hugh Wilma Boulton Reed; John Smith, and Ian Hirst, all of Stockton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Apr. 7, 1970, Ser. No. 26,445

Claims priority, application Great Britain, Apr. 21, 1969, 20,220/69

Int. Cl. C07c *43/22*, *41/00*

U.S. Cl. 260—613 D 14 Claims

Specified cyclic dienones are converted to substituted phenols, for example 4-methoxy-2,6-di-tert.butyl phenol, by treatment with acids.

3,758,597

2-(HYDROXYPHENYL)-2-(ISOPROPENYLPHENYL)-PROPANES, PROCESS FOR THEIR MANUFACTURE

Hans-Josef Buysch; Heinrich Krimm, both of Krefeld-Bockum, and Dieter Margotte, Krefeld, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

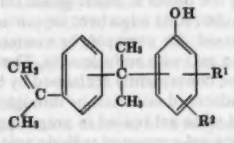
Filed Sept. 39, 1970, Ser. No. 76,978

Claims priority, application Germany, Oct. 9, 1969, P 29 50 982.1

Int. Cl. C07c *43/20*, *39/18*

U.S. Cl. 260—613 R 9 Claims

The present invention relates to a 2-(2-or 4-hydroxyphenyl)-2-(3- or 4-isopropenyl-phenyl)-propanes of the formula



in which

R^1 and R^2 are identical or different and denote hydrogen, halogen, hydroxyl, alkyl, cycloalkyl or alkoxy with up to 6 carbon atoms, and a process for their manufacture and their use for the manufacture of polymers.

3,758,598

SYNTHESIS OF ALIPHATIC AND ALICYCLIC ETHERS

John O. Turner, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 873,093, Oct. 31, 1969, abandoned. This application Dec. 14, 1970, Ser. No. 98,036

Int. Cl. C07c *41/00*

U.S. Cl. 260—614 R 8 Claims

Aliphatic and alicyclic hydroperoxides may be converted to their corresponding ethers by reacting said hydroperoxides with a suitable alcohol in the presence of an acid and a metal catalyst.

3,758,599

PRODUCTION OF ALKYL BENZENES

Nicholas Bernard Lorette, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 26, 1972, Ser. No. 257,102

Int. Cl. C07c *5/18*, *5/02*

U.S. Cl. 260—668 D 12 Claims

Process for the production of alkyl benzenes wherein norbornenes are passed under superatmospheric pressure through a hydrogenation catalyst in the presence of hydrogen at a relatively low temperature i.e. 50°–250°C. and then passed through a reforming catalyst at a higher temperature i.e. 400°–600°C. and the alkyl benzenes are recovered.

3,758,600

AROMATIZATION CATALYST AND PROCESS

Paul E. Eberly, Jr., Baton Rouge; Neville L. Cull, Baker, both of La., and Fred J. Buchmann, deceased, late of Baton Rouge, La. (by Cordelia Atkeson Buchmann, legal representative and heir), assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Sept. 24, 1971, Ser. No. 183,381

Int. Cl. C07c *5/27*

U.S. Cl. 260—673.5 19 Claims

An aromatization catalyst is provided comprising from about 0.5 to about 30 percent of a Group VI B metal oxide on a support comprising a mixture of titania and alumina, wherein said titania is present in amounts ranging from about 1 to about 60 percent by weight. The catalyst is employed to promote the conversion of paraffins, olefins, cycloparaffins, cycloolefins and mixtures thereof to aromatics by contacting said paraffins and/or olefins with said catalyst at temperatures ranging from about 400° to about 1200°F.

3,758,601

THREE-PHASE ORGANICS SEPARATION PROCESS

Roger Wylie, Baytown, Tex.

Filed Nov. 17, 1971, Ser. No. 199,459

Int. Cl. C07c *7/14*

U.S. Cl. 260—674 A 9 Claims

Closely boiling hydrocarbon mixtures in which one of the components forms a solid phase, e.g. crystals, preferably xylene and/or ethylbenzene mixtures, are separated by providing a three-phase zone. One of the phases comprises the crystals of desired product. Another phase is organic material from which the crystals have separated; and the third phase is an immiscible phase.

The material constituting the immiscible phase is chosen so that it is lighter than the crystals but heavier than the remaining organic component. Moreover, it must be able to withstand crystallization itself at the subzero temperatures utilized to form the organic crystals.

Specifically, paraxylene is separated from a mixture of xylene isomers utilizing water plus methyl alcohol or water plus methyl alcohol plus glycol as the immiscible phase.

3,758,602
SELECTIVE CATALYSIS
Nai Yuen Chen, Cherry Hill, and Stanley J. Lucki, Runnemede, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.
Division of Ser. No. 531,045, March 2, 1966, Pat. No. 3,535,398. This application Mar. 11, 1970, Ser. No. 877,578
Int. Cl. C07c 9/00, 11/00
U.S. Cl. 260—676 R 3 Claims

The invention relates to a process for selectively cracking polar compounds from non-polar saturated hydrocarbons in the presence of a crystalline aluminosilicate catalyst having a pore size of about 5 Angstrom units wherein a mixture of polar compounds and non-polar saturated hydrocarbon species having dimensions no greater than 5 Angstrom units are contacted with the aluminosilicate. The molecular species which is capable of being sorbed within the internal pores of the aluminosilicate at a faster rate than the other species is selectively cracked to a chemical species which is distinct from the species admitted.

3,758,603
PROCESS FOR SEPARATION OF UNSATURATED HYDROCARBONS
Edward F. Steigelmann, and Robert D. Hughes, Park Forest, both of Ill., assignors to Standard Oil Company, Chicago, Ill.
Filed May 12, 1972, Ser. No. 252,607
Int. Cl. C07c 11/12, 9/00
U.S. Cl. 260—677 A 20 Claims

There is described the separation of aliphatically unsaturated hydrocarbons from mixtures by the combined use of liquid barrier permeation and metal complexing techniques. The liquid barrier is in contact with a film membrane, and the barrier contains complex-forming metal ions in aqueous solution. The metal ions may be, for example, noble metal, mercuric, cuprous or other metal ions, and mixtures of these metal ions, with or without other cations, may be used. The separation of ethylene from ethane and methane is of particular interest.

3,758,604
ISOMERIZATION-FRACTIONATION PROCESS
Nathan Sprecher, Waterloo, Belgium, and John Thomas Cotter, Randolph, N.J., assignors to Esso Research and Engineering Company, Linden, N.J.
Filed Mar. 15, 1972, Ser. No. 234,734
Claims priority, application Great Britain, Mar. 19, 1971, 7,309/71
Int. Cl. C07c 11/12
U.S. Cl. 260—677 A 13 Claims

A process for separating isobutylene from C_4 feeds by subjecting the feed to isomerization using a low-temperature active isomerization catalyst, reducing the butene-1 level followed by fractionation of the isomerized feed and again isomerizing the top fraction containing isobutylene and remaining butene-1 and isolating isobutylene therefrom. Preferably the isomerization of the feed is carried out in two stages under adiabatic conditions, with cooling in between.

3,758,605
PROCESS
Robert D. Hughes, and Edward F. Steigelmann, both of Park Forest, Ill., assignors to Standard Oil Company, Chicago, Ill.
Continuation-in-part of Ser. No. 252,607, May 12, 1972. This application Sept. 13, 1972, Ser. No. 288,781
Int. Cl. C07c 11/02; B01d 53/22
U.S. Cl. 260—677 A 24 Claims

There is described the separation of aliphatically-unsaturated hydrocarbons from mixtures by the combined use of liquid barrier permeation and metal complexing techniques. The liquid barrier is within a hydrophilic film membrane, and the barrier contains complex-forming metal ions in aqueous solution. The metal ions may be, for example, noble metal, nickel, mercurous, cuprous or other metal ions, and mixtures of these metal ions, with or without other cations, may be used. The separation of ethylene from ethane and methane is of particular interest.

3,758,606
CORROSION INHIBITORS FOR CUPROUS TETRACHLOROALUMINATE COMPLEXES
Hugh H. Horowitz, Elizabeth, and Charles E. Jahnig, Rumson, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.
Filed June 2, 1972, Ser. No. 259,258
Int. Cl. C07c 7/00, 11/12
U.S. Cl. 260—677 A 12 Claims

A method is described wherein soluble compounds of antimony, arsenic, and bismuth are dissolved in aromatic hydrocarbon solutions containing cuprous halide-Lewis acid combinations such as cuprous tetrachloroaluminate to prevent the pitting corrosion of carbon steel. Particularly the method is useful in combination with a process for ligand recovery by means of complexing with aromatic sorbent solutions containing said cuprous tetrachloroaluminate complexes.

3,758,607
INHIBITORS FOR OLEFIN COMPLEXING PROCESS
Hugh H. Horowitz, Elizabeth, N.J., and Helmut W. Ruhle, Dormagen, Germany, assignors to Esso Research and Engineering Company, Linden, N.J.
Filed June 2, 1972, Ser. No. 259,219
Int. Cl. C07c 11/12, 7/00
U.S. Cl. 260—677 A 11 Claims

Combinations of organic phosphines and organic nitrogen bases help stabilize complexing solutions containing cuprous and silver salts whose anionic components are Lewis acids, said salts being dissolved in aromatic solvents, when the solutions are in the presence of olefins, to prevent side reactions from occurring during olefin complexing processes in which the above complexing solutions are employed.

3,758,608
PROCESS FOR ACID TREATING OF OLEFINS
Orville W. Rigdon, Groves; Anthony Macaluso, Sr., and William J. Powers, III, both of Port Arthur, all of Tex., assignors to Texaco Inc., New York, N.Y.
Filed Aug. 26, 1971, Ser. No. 175,333
Int. Cl. C07c 11/12
U.S. Cl. 260—677 AD 9 Claims

Olefins, such as C_5 to C_{30} olefins formed by thermal cracking of long chain normal paraffins, are subjected to acid treatment by contacting the olefins in liquid phase at a temperature of about 0° to about 225°F. and, preferably, from about 50° to about 100°F., with an adsorbent supported sulfuric acid composition. The process can be conducted, for example, by passing the olefin in liquid phase through a bed of free-flowing, granular, solid adsorbent supported sulfuric acid composition prepared, for example, by contacting an adsorbent, such as silica gel, with sulfuric acid. The spent treating composition can be conveniently reclaimed by burning off the accumulation of adsorbed materials or through solvent action and the recovered silica gel reused in preparing an additional amount of the silica gel supported sulfuric acid material. The acid treated olefins are highly useful for production of olefin sulfonate detergents having an improved color.

3,758,609

PROCESSES FOR THE OXIDATIVE DEHYDROGENATION OF HYDROCARBON FEEDSTOCKS

Robert S. Cichowski, Arroyo Grande, Calif., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 11, 1971, Ser. No. 105,730
Int. Cl. C07c 5/18, 11/18
U.S. Cl. 260—680 E 4 Claims

Organic compounds are dehydrogenated to compounds having a higher degree of unsaturation by contacting the feedstock in the vapor phase in the presence of an oxygen-containing gas with a catalyst containing cobalt, iron and antimony in an oxidized state or nickel-iron-antimony in an oxidized state. Representative of such conversions is the oxidative dehydrogenation of isopentane to isoprene over a nickel-iron-antimony-oxygen catalyst having a nickel:iron:antimony atomic ratio of 1:3:1. The conversion products are valuable compounds particularly useful as intermediates for the preparation of polymeric materials such as synthetic rubbers and the like.

3,758,610

PREPARATION OF ISOPRENE FROM ISOBUTYLENE AND METHYLAL

John O. Turner, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Mar. 22, 1971, Ser. No. 126,934
Int. Cl. C07c 1/20, 11/18
U.S. Cl. 260—681 12 Claims

The reaction of isobutylene and methylal to form a mixture 1,3-dimethoxy-3-methyl butane and 4-methoxy-2-methylbutene-1 and rearrangement of the same to yield isoprene and methanol is disclosed herein. The isobutylene and methylal may be obtained by the oxidation of isobutane to form t-butylhydroperoxide, followed by rearrangement of the hydroperoxide to yield methylal and t-butyl alcohol and dehydration of the alcohol to produce isobutylene.

3,758,611

METHOD OF REMOVING ALDEHYDES

Rokuro Denda, and Toshio Kawaguchi, both of Kurashiki, Japan, assignors to Kuraray Co. Ltd., Okayama Prefecture, Japan

Filed Sept. 24, 1971, Ser. No. 183,709
Claims priority, application Japan, Sept. 29, 1970, 45/85438
Int. Cl. C07c 7/00
U.S. Cl. 260—681.5 R 4 Claims

A method of removing aldehydes from an organic layer separated from a condensate of a reaction mixture resulting from the vapor phase catalytic decomposition of 4,4-dimethyl-1,3-dioxane to isoprene, which comprises bringing the organic layer and water into liquid-liquid contact at an elevated temperature of 45°C. or higher to extract the aldehydes out of said organic layer.

3,758,612

DEHYDRATION OF DIOLS USING LITHIUM PHOSPHATE CATALYST

Jean Maurin, Montivilliers, France, assignor to Compagnie Francaise de Raffinage, Paris, France

Division of Ser. No. 30,276, April 20, 1970, abandoned. This application Apr. 20, 1972, Ser. No. 245,798
Claims priority, application France, Apr. 22, 1969, 6912684
Int. Cl. C07c 1/24
U.S. Cl. 260—681 3 Claims

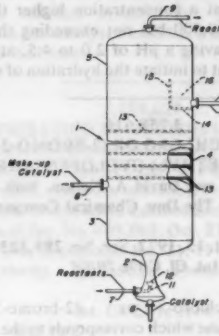
As a new dehydration catalyst for epoxides or diols, lithium phosphate having a ratio of the numbers of Li to P atoms between 2,2 and 3; a process for preparing the catalyst and its uses have also been disclosed.

3,758,613

HYDROGEN FLUORIDE-CATALYZED ALKYLATION WITH A VENTURI-SHAPED REACTOR

Robert F. Anderson, La Grange Park, Ill., assignor to Universal Oil Products Company, Des Plains, Ill.

Filed June 3, 1971, Ser. No. 149,594
Int. Cl. C07c 3/54
U.S. Cl. 260—683.48 6 Claims



A process and apparatus for producing an alkylation reaction product from an alkylatable reactant and an olefin-acting reactant utilizing a fluid catalyst. The reactants are introduced into a catalyst stream flowing vertically through a venturi-shaped chamber, the mixture of catalyst and reactants so formed is charged through the venturi-shaped chamber into a retention chamber, and the effluent from the retention chamber is separated in a settling chamber to provide a catalyst phase and a reaction products phase. The product is recovered in the reaction products phase.

3,758,614

HYDROGENATION OF ORGANIC COMPOUNDS

Joseph K. Mertzweiller, and Horace M. Tenney, both of Baton Rouge, La., assignors to Esso Research and Engineering Company, Linden, N.J.

Continuation-in-part of Ser. No. 1,282, Jan. 7, 1970, Pat. No. 3,677,970, which is a continuation-in-part of Ser. No. 674,097, Oct. 10, 1967, abandoned. This application May 16, 1972, Ser. No. 253,762
Int. Cl. C07c 5/02
U.S. Cl. 260—683.9 12 Claims

Novel hydrogenation catalysts are formed by impregnating a suitable support material with an aqueous solution of a salt of a transition metal; heat-treating the impregnated support at a temperature above 500°F. to form chemical complexes on the surface of the support and to drive off moisture and absorbed oxygen; activating the surface complex by contacting the impregnated support with a soluble organometallic compound wherein the metal constituent is selected from Groups I, II and III of the Periodic Chart of the Elements; treating the activated support material in the presence of hydrogen at a temperature of at least 300°F., and thereafter reacting the hydrogen treated activated support material with hydrogen sulfide. The so-formed novel supported sulfided catalysts are highly active for the hydrogenation of organic feedstocks containing relatively high concentration of sulfur in the feedstocks.

3,758,615

PROCESS FOR THE PREPARATION OF ALCOHOLS

Yusuke Izumi, Yamaguchi-ken; Yuzo Kawasaki, Tokuyama, and Mitsuo Tani, Yamaguchi-ken, all of Japan, assignors to Tokuyama Soda Kabushiki Kaisa, Yamaguchi-ken, Japan

Filed May 5, 1970, Ser. No. 34,872
Claims priority, application Japan, May 8, 1969, 44/34798
Int. Cl. C07c 29/04
U.S. Cl. 260—641 10 Claims

A process for the preparation of mono hydric alcohols from olefins which comprises contacting a monoolefin having two to four carbon atoms with an aqueous solution containing silicotungstic radicals at a concentration higher than a molar concentration of 1/40,000 but not exceeding the saturation concentration and having a pH of 2.0 to 4.5, at an elevated temperature sufficient to initiate the hydration of said olefin.

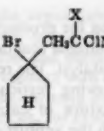
3,758,616

1-BROMO-1-(2,2-DICHLORO OR (2-BROMO-2-CHLORO)-2-NITROETHYL)-CYCLOPENTANE

Wilson F. Gum, Jr., and David A. Nelson, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sept. 15, 1972, Ser. No. 289,323
Int. Cl. C07c 79/08
U.S. Cl. 260—644 3 Claims

1-Bromo-1-(2,2-dichloro or (2-bromo-2-chloro)-2-nitroethyl)cyclopentane which corresponds to the formula



wherein X represents chloro or bromo are prepared. These compounds have been found to have fungicidal, bacteriocidal and nematocidal activity.

3,758,617

HALOGEN SUBSTITUTED POLYCYCLIC HYDROCARBONS

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Aug. 27, 1970, Ser. No. 67,611
Int. Cl. C07c 17/00, 23/46
U.S. Cl. 260—648 C 14 Claims

Novel compositions of matter comprising halogen substituted polycyclic hydrocarbons containing a vinylene bridge as exemplified by 4,8,9,10-tetrachloro-4,8-vinylene-perhydro-s-indacene are useful as flame retardant agents when composited with polymeric substrates.

3,758,618

PRODUCTION OF TETRAFLUOROETHYLENE OLIGOMERS

William Roy Deem, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Feb. 27, 1973, Ser. No. 15,275
Claims priority, application Great Britain, Mar. 3, 1969, 11,137/69
Int. Cl. C07c 17/26; C08f 3/22
U.S. Cl. 260—653.1 10 Claims

Tetrafluoroethylene is advantageously oligomerized by interacting fluoride ions with tetrafluoroethylene in the presence of quaternary ammonium ions from the chloride, bromide or iodide salts. The preferred source of fluoride ions is potassium fluoride.

3,758,619

HYDROCARBON CONVERSIONS IN THE PRESENCE OF ONIUM COMPOUNDS

Francis T. Wadsworth, Trenton, N.J., and Charles G. McAlister, deceased, late of Lake Charles, La. (by Bernice McAlister, heir), assignors to Cities Service Company, New York, N.Y.

Filed Dec. 30, 1970, Ser. No. 102,999
Int. Cl. C07c 17/06
U.S. Cl. 260—659 A 1 Claim

A variety of hydrocarbon conversions including chlorinations, oxychlorinations, oxidations and oxidative dehydrogenations are carried out using onium compounds as catalysts or catalyst-reaction media. Generally, the reactants are passed through a melt of the onium compound or, alternatively, through a bed of the onium compound. The onium compound is preferably either a simple salt or a complex salt.

3,758,620

PROCESS FOR THE PREPARATION OF GRIGNARD REAGENTS

Jaroslav Vit, New York, N.Y., assignor to National Patent Development Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 874,711, Nov. 6, 1969, Pat. No. 3,629,288. This application June 11, 1971, Ser. No. 152,365
Int. Cl. C07f 3/02, 5/06
U.S. Cl. 260—665 G 11 Claims

Homogeneous catalyst solvent systems for the preparation of Grignard reagents and the running of Grignard reactions are disclosed. These systems are superior to existing techniques for running Grignard reactions in that they significantly reduce or completely eliminate the induction periods which occur in most Grignard reagent [RMgX; where R=Alkyl or Aryl and X = Cl,Br or I] preparations and make possible the use of alkyl chlorides in the Grignard preparations instead of the more expensive alkyl bromides or iodides. The catalyst solvent systems are formed by the addition of small percentages of reducing hydrides, for example, $LiAlH_4$, $NaAlH_4$, $NaAlH_3(OCH_2CH_2OCH_3)_2$ or $NaAlH(OCH_2CH_2OCH_3)_3$ to the ether solvents, such as diethyl ether, tetrahydrofuran, dibutyl ether or 1,2 dimethoxyethane.

3,758,621

PROCESS FOR PRODUCING CYCLODODECATRIENES

Hiroyuki Morikawa; Akiya Nakamura; Noriyoshi Tamura, and Kazuo Yamagishi, all of Ami-machi, Japan, assignors to Mitsubishi Petrochemical Company, Limited, Tokyo-to, Japan

Filed Dec. 14, 1971, Ser. No. 207,955
Claims priority, application Japan, Dec. 25, 1970, 45/117720
Int. Cl. C07c 3/00
U.S. Cl. 260—666 B 7 Claims

Crude butadiene-1,3 which is a B-B fraction is subjected to catalytic trimerization to produce cyclododecatriene-1,5,9 in the presence of a Ziegler-type catalyst comprising a Ti-compound, e.g., Ti (OPrCl)Cl_3, an Al-compound, e.g., $AlEt_2Cl$, and electron-donor compounds containing S and containing P, e.g., dimethyl sulfoxide and triphenyl phosphate.

3,758,622

PREPARATION OF ALKYNYL ARYL COMPOUNDS

James M. Watson, and Birt Allison, both of Big Spring, Tex., assignors to Cosden Oil & Chemical Company, Big Spring, Tex.

Filed May 25, 1971, Ser. No. 146,797
Int. Cl. C07c 15/04
U.S. Cl. 260—668 R 7 Claims

A process for the conversion of alkyl aryl compounds to alkynyl aryl compounds which comprises subjecting said alkyl

aryl compounds to chlorination under conditions suitable for the dichlorination of at least one carbon atom of an alkyl substituent to said alkyl aryl compound or monochlorination of adjacent carbon atoms of said alkyl substituent, subjecting the resulting chlorinated alkyl aryl compound to dehydrochlorination in the presence of a basic medium, and thereafter recovering alkynyl aryl compounds.

3,758,623

ISOMERIZATION SOLVENTS

George M. Kramer, Berkeley Heights, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Continuation-in-part of Ser. No. 28,039, April 13, 1970, abandoned. This application June 2, 1971, Ser. No. 149,368

Int. Cl. C07c *5/24*

U.S. Cl. 260—668 A **19 Claims**

Benzene, which contains at least four substituted halogens, is an effective solvent for a Lewis acid catalyst employed in the isomerization of hydrocarbons. A particularly preferred isomerization solvent is 1,2,3,4-tetrachlorobenzene and is used in conjunction with aluminum bromide. In another aspect of this invention, if hydrogen, with or without added hydrogenation components, is added to the catalyst system, the isomerization selectivity of the reaction is greatly improved and the life of the catalyst system itself is greatly enhanced. When substantial amounts of benzene are present in the feed, a hydrogenation component is added to the system so that the benzene is hydrogenated to cyclohexane which is then subsequently isomerized to methylcyclopentane.

3,758,624

GASOLINE COMPOSITIONS

Warren L. Perilstein, Orchard Lake, Mich., assignor to Ethyl Corporation, Richmond, Va.

Division of Ser. No. 828,753, May 28, 1969, abandoned. This application May 26, 1971, Ser. No. 147,235

Int. Cl. C07c *15/04, 3/56*

U.S. Cl. 260—668 R **2 Claims**

A method of reducing intake valve deposits formed in a spark ignition gasoline-fueled internal combustion engine is disclosed. The method features the use of gasoline containing a deposit reducing amount of a high molecular weight alkyl aromatic hydrocarbon or mixture of alkyl aromatic hydrocarbons.

The gasoline compositions and gasoline additive concentrates are also disclosed.

3,758,625

DEHYDROGENATION CATALYST

Abraham D. Cohen, Sarnia (Lambton), Ontario, Canada, assignor to Esso Research and Engineering Company, Linden, N.J.

Filed Apr. 30, 1971, Ser. No. 138,938

Int. Cl. C07c *5/18, 15/10*

U.S. Cl. 260—669 R **10 Claims**

In the dehydrogenation of an organic compound in the vapor phase in the presence of a sulfur compound over a low surface area dehydrogenation catalyst, the initial conversion and thus overall yield to the desired dehydrogenated product is significantly increased by depositing a controlled amount of carbonaceous material, i.e., coke, on the surface of the said catalyst before introducing said catalyst into the dehydrogenation zone. Preferably, about 0.01 to about 20 wt. percent carbonaceous materials, i.e., coke, is deposited on the surface of the low surface area dehydrogenation catalyst before introduction into the dehydrogenation zone in order to initially increase the conversion and thus the overall yield to the desired dehydrogenated product.

3,758,626

DIMERIZATION OF OLEFINS WITH SUPPORTED PALLADIUM CATALYSTS

Robert P. Arganbright, and Edward J. Miklas, both of Houston, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

Filed July 29, 1970, Ser. No. 59,370

Int. Cl. C07c *3/12, 3/18*

U.S. Cl. 260—683.15 R **16 Claims**

Palladium salts supported on material such as alumina or silica alumina provide effective catalysts for the dimerization or codimerization of α-olefins such as ethylene or propylene in a heterogenous reaction system. The products are easily separated from the catalyst which has a high degree of activity for long periods of time.

3,758,627

POLYMERIZATION OF OLEFINS USING A SILICA-PHOSPHORIC ACID CATALYST

Bernard Juguin, and Jean Francois Le Page, both of Rueil Malmaison, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants, Rueil-Malmaison, France

Division of Ser. No. 869,860, Oct. 27, 1969, Pat. No. 3,657,150. This application Jan. 11, 1972, Ser. No. 217,046

Claims priority, application France, Oct. 31, 1968, 68172358

Int. Cl. C07c *3/16*

U.S. Cl. 260—683.15 C **7 Claims**

The polymerization, especially the oligomerization, of olefins, for example, propylene and/or butene, wherein the improvement resides in the use of a solid catalyst consisting essentially of a silica carrier and phosphoric acid, the molar ratio of P_2O_5 to SiO_2 being between 0.6 and 0.95, and the content of the crystalline C form of silicium phosphate being between 75 and 95 percent, said catalyst having been produced by heating a mixture of silica with phosphoric acid at 550 to 1,000°C, and then in a second step, contacting the resultant heated catalyst with steam at 100°—300°C so as to activate same.

3,758,628

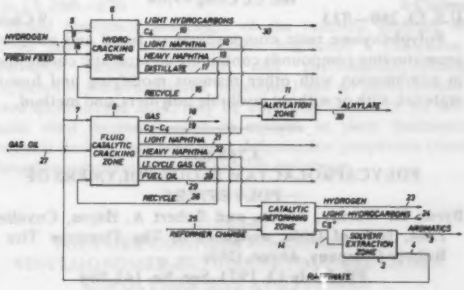
COMBINATION CRACKING PROCESS FOR CONVERTING PARAFFINIC NAPHTHA INTO HIGH OCTANE GASOLINE

John C. Strickland, and Dorrance P. Bunn, Jr., both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Dec. 20, 1971, Ser. No. 210,078

Int. Cl. C07c *3/52*; C10g *37/06, 37/10*

U.S. Cl. 260—683.43 **7 Claims**



A process for manufacturing high octane gasoline from a low octane paraffinic naphtha, which comprises hydrocracking a first portion of the naphtha to yield a C_4 fraction comprising isobutane and a hydrocracked light naphtha fraction having a relatively high octane number, catalytically

cracking a second portion of the naphtha to yield a C_3–C_4 fraction comprising propylene, butylenes and isobutane and a catalytically cracked light naphtha fraction having a relatively high octane number, and reacting, in an alkylation zone the hydrocracked C_4 fraction and the catalytically cracked C_3–C_4 fraction to yield a high octane gasoline alkylate. The proportion of naphtha charged to the hydrocracking zone and the catalytic cracking zone are adjusted such that isobutane, butylene and propylene charge to the alkylation zone are in stoichiometric balance.

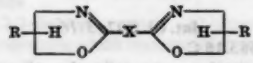
3,758,629

CROSS-LINKING OF ADDITION POLYMERS CONTAINING COMBINED FREE CARBOXYL BY REACTION WITH A DI-2-OXAZOLINE

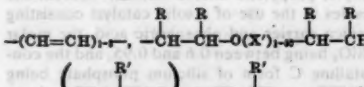
Bruce P. Thill, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 7, 1971, Ser. No. 141,415
Int. Cl. C08f 27/08
U.S. Cl. 260—80.8 **4 Claims**

Cross-linking of addition polymers containing free carboxyl groups by utilizing, as a cross-linking agent, from 0.1 to 10 equivalents per equivalent of free carboxyl of a di-2-oxazoline of the formula



wherein X represents



in the above formulae each R represents hydrogen or alkyl having from one to four carbon atoms; X′ represents ethyleneoxy or propyleneoxy; R′ represents hydrogen or alkyl having from one to three carbon atoms; X″ represents oxygen or sulfur; and R″ represents alkylene of from two to 20 carbon atoms, arylene of from six to 10 carbon atoms or arylakylene of from seven to 15 carbon atoms.

3,758,630

METHOD OF PREPARING RESIN COMPOSITIONS

Norman Bilow, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 665,284, Sept. 5, 1967, abandoned. This application Jan. 7, 1971, Ser. No. 194,779
Int. Cl. C08g 49/04
U.S. Cl. 260—823 **9 Claims**

Polyphenylene resin compositions of fused and non-fused aromatic ring compounds containing an aromatic curing agent in combination with other resinous modifying and forming material, with or without insoluble polymers, and method.

3,758,631

POLYCAPROLACTAM BLOCK POLYMERS OF POLYESTERS

Byron H. Werner, Akron, and Robert A. Hayes, Cuyahoga Falls, both of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed July 12, 1971, Ser. No. 161,964
Int. Cl. C08g 45/12
U.S. Cl. 260—830 P **10 Claims**

Block copolymers of polycaprolactam and polylactone are produced by reacting, in the presence of an anionic catalyst, caprolactam with a polylactonediol which has been end-grouped, and optionally chain-extended, with a diisocyanate. The products are useful in elastic articles such as pneumatic tires, threads, etc., and as components of melt adhesives.

3,758,632

POWDERED COATING COMPOSITION OF UNSATURATED GLYCIDYL AND ANHYDRIDE COPOLYMER AND A FLOW CONTROL AGENT

Santokh S. Labana, Dearborn Heights, and Ares N. Theodore, Farmington, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1971, Ser. No. 172,235
Int. Cl. C08g 45/04, 45/00
U.S. Cl. 260—836 **5 Claims**

Powder coating compositions are disclosed. In general, individual powder coating compositions of this invention are a mixture of several materials. The most significant materials employed in the powder coatings include the following. A copolymer containing epoxy and anhydride crosslinkale, functional groups, forms the most important constituent of the powder coating. This copolymer has a glass transition temperature in the range of 40°C to 90°C and a molecular weight (M_n) in the range from about 3,000 to about 10,000. Another material of an individual composition is a flow control agent which forms at least 0.05 percent by weight of the mixture. The flow control agent is a polymer having a molecular weight (M_n) of at least 1000. Also, the flow control agent has a glass transition temperature at least 50°C lower than the glass transition temperature of the copolymer. Other materials which may be employed in individual powder coating compositions are catalysts, pigments, antistatic agents and plasticizers.

3,758,633

POWDERED COATING COMPOSITIONS OF CARBOXY CONTAINING COPOLYMERS, EPOXY CROSSLINKING AGENTS AND FLOW CONTROL AGENTS

Santokh S. Labana, Dearborn Heights; Amos Golovoy, Westland, and Seymour Newman, Southfield, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1971, Ser. No. 172,226
Int. Cl. C08g 45/04
U.S. Cl. 260—836 **4 Claims**

Powder coating compositions are disclosed. In general, individual powder coating compositions of this invention are a mixture of the following materials. A copolymer of an α, β unsaturated carboxylic acid and an ethylenically unsaturated compound is formed in such proportions as to obtain a copolymer with a glass transition temperature in the range of 40°C to 90°C and a molecular weight (M_n) in the range of 2,500 to 8,500. The α, β-unsaturated carboxylic acid is present in the copolymer from at least about 3 percent by weight to not more than about 10 percent by weight. Another material of the coating composition is an epoxy resin in the amount of 0.8 to 1.1 epoxy groups for each carboxy group in the copolymer. A third material utilized in forming the powder coating mixture is a flow control agent which forms at least 0.05 percent by weight of the mixture. The flow control agent is a polymer having a molecular weight (M_n) of at least 1,000. The flow control agent also has a glass transition temperature at least 50°C below the glass transition temperature of the copolymer.

3,758,634

POWDERED COATING COMPOSITION OF UNSATURATED GLYCIDYL COPOLYMER, FLOW CONTROL AGENTS AND DIPHENOLIC CROSSLINKING AGENTS

Santokh S. Labana, Dearborn Heights, and Seymour Newman, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1971, Ser. No. 172,228
Int. Cl. C08g 45/04, 45/00
U.S. Cl. 260—836 **31 Claims**

Powder coating compositions are disclosed. In general, individual powder coating compositions are a mixture of the fol-

lowing materials. A copolymer of glycidyl methacrylate and an ethylenically unsaturated compound is formed in such proportions as to obtain a copolymer with a glass transition temperature in the range of 40°C to 90°C and a molecular weight (M_n) in the range of 2500 to 8500. The glycidyl methacrylate is present in the copolymer from at least about 8 percent by weight to no more than about 25 percent by weight. Another material of the coating composition is a cross linking agent formed of a diphenol having a molecular weight in the range of about 110 to 550, the diphenol being present in the amount of 0.8 to 1.1 phenolic hydroxyl groups for each epoxy group in the copolymer. A third material used in forming the powder coating mixture is a flow control agent which forms at least 0.05 percent by weight of the mixture. The flow control agent is a polymer having a molecular weight (M_n) of at least 1000. The flow control agent also has, at the baking temperature of the powder coating composition, a lower surface tension than the surface tension of the copolymer.

3,758,635

POWDERED COATING COMPOSITIONS OF UNSATURATED GLYCIDYL COPOLYMERS WITH FLOW CONTROL AGENTS

Santokh S. Labana, Dearborn Heights; Yun Feng Chang, Plymouth, and Ares N. Theodore, Farmington, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1971, Ser. No. 172,222
Int. Cl. C08g *45/04*
U.S. Cl. 260—836 **4 Claims**

Powder coating compositions are disclosed. In general, individual powder coating compositions of this invention are a mixture of the following materials. A copolymer of glycidyl methacrylate of glycidyl acrylate and an ethylenically unsaturated compound is formed in such proportions as to obtain a copolymer with a glass transition temperature in the range of 40°C to 90°C and a molecular weight (M_n) in the range of 2,500 to 8,500. The glycidyl compound is present in the copolymer from at least about 8 percent by weight to no more than about 25 percent by weight. Another material of the coating composition is a compound which contains tertiary nitrogen atoms in the amount of 0.5 to 10 parts by weight for 100 parts of the copolymer. A third material utilized in forming the powder coating mixture is a flow control agent which forms at least 0.05 percent by weight of the mixture. The flow control agent is a polymer having a molecular weight (M_n) of at least 1,000. The flow control agent also has a glass transition temperature at least 50°C below the glass transition temperature of the copolymer.

3,758,636

BLOCK COPOLYMERS OF POLYAMIDES AND AMINO TERMINATED POLYMERIZED ETHYLENICALLY UNSATURATED COMPOUNDS

Hideichi Horikawa; Shitomi Katayama, both of Akita, and Noboru Masuda, Kawaguchi, all of Japan, assignors to Denki Onkyo Co., Ltd., Tokyo, Japan

Filed Apr. 13, 1972, Ser. No. 243,836
Claims priority, application Japan, Apr. 13, 1971, 46/23347
Int. Cl. C08g *41/04*
U.S. Cl. 260—857 G **18 Claims**

This invention provides a process for manufacturing block copolymers containing amide linkages and polymerized units of ethylenically unsaturated monomers. The process is characterized by polymerizing an ethylenically unsaturated monomer in the presence of a Lewis Acid and an acid polyhalide to give a ω,ω′-dihalopolymer, which is then converted by ammonolysis or aminolysis into a ω,ω′-diaminopolymer, which, in turn, is polymerized with a polycondensable monomer such as an amino acid, an ester of an amino acid, a diamine, a dicarboxylic acid, and ester of dicarboxylic acid, dicarboxyloyl halide to give the block copolymer. These new polymers are useful for conventional applications of polyamides and polyvinyl compounds, particularly in those instances where defects of either type of polymer require improvement. These new polymers are useful for many practical applications, since they can be cast or spun into films, fibers, plastics, etc. depending upon their compositions and types of monomers. For example, polystyrenecaproamide can be used as a plastic in a richer composition of caproamide units, and also as a film in the medium composition balance.

3,758,637

CROSSLINKED POLYUREA FROM DIHYDRAZIDES OF METHYLATED MUCONIC ACIDS

Richard D. Cassar, West Chester, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

Filed Dec. 30, 1971, Ser. No. 214,402
Int. Cl. C08g *41/04*
U.S. Cl. 260—859 R **4 Claims**

Novel linear polymers having high melting points and suitable for use as adhesives, sealants, films, surface coatings and as chromotographic agents can be prepared from dihydrazides of methylated muconic acids either singularly or in mixtures with each other and an organic diisocyanate. The linear polymer may also be crosslinked by heat or free radicals or with ethylenically unsaturated monomers to produce useful films and coatings.

3,758,638

UNSATURATED POLYESTERS WITH REDUCED SMOKE LEVELS

Herman P. Doerge, Oakmont, and Marco Wismer, Gibsonia, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 26, 1971, Ser. No. 192,589
Int. Cl. C08f *43/00*, *43/02*
U.S. Cl. 260—865 **27 Claims**

This invention relates to unsaturated polyester resins having reduced smoke levels and/or flame spread. The invention comprises incorporating particulate organic carboxylic acid into a polyester resin. Preferably the resin is a fire-retardant formulation and the presently-preferred carboxylic acid employed in particulate form is fumaric acid.

3,758,639

STYRENE SOLUBLE CHEMICALLY RESISTANT POLYESTER

James C. Spitsbergen, Franklin Lakes, and Young Kwon Kim, Paterson, both of N.J., assignors to Witco Chemical Company, New York, N.Y.

Filed Aug. 11, 1971, Ser. No. 170,965
Int. Cl. C08f *21/02*; C08g *17/10*
U.S. Cl. 260—870 **6 Claims**

Mixed bisphenol polyesters of the reaction product of 50–90 mol percent dialkoxylated bisphenol S (dihydroxydiphenyl sulfone), 10–50 mol percentdialkoxylated bisphenol A (isopropylidene bisphenol) and an alpha-unsaturated dicarboxylic acid, may be copolymerized with an aromatic vinyl monomer such as styrene to yield thermoset products having improved heat deformation properties (heat distortion temperatures) and solvent resistance.

3,758,640

POLYMER COMPOSITION COMPRISING VINYLMONOMER-BUTADIENE POLYMER GRAFT COPOLYMER AND A POLYESTER

Donald H. Thorpe, Williamsville, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Continuation-in-part of Ser. No. 775,161, Nov. 12, 1968. This application July 20, 1970, Ser. No. 56,675
Int. Cl. C08g *39/10*
U.S. Cl. 260—873 **4 Claims**

Polymers are produced by reacting a polymerizable monomer having aliphatic carbon-to-carbon unsaturation and

a polymer of butadiene in an emulsion-suspension polymerization system. The polymers can be blended with another polymer of butadiene such as a polymer of a polymerizable monomer and polybutadiene to produce useful products or used alone to produce molded articles, laminates, extruded products, protective coatings and the like having superior tensile strength together with high impact strength. Blends with halogen containing polyesters and phosphorous containing polyesters or other materials are particularly useful in producing fire retardant polymers.

3,758,641

ADHESION OF POLYMER GELS TO CELLULOSE

Maurice L. Zweigle, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 21, 1971, Ser. No. 108,585

Int. Cl. C08f *33/08*, *41/12*, *35/06*

U.S. Cl. 260—874 **5 Claims**

Water-swellable crosslinked polymer gels show increased adhesion to wood and other cellulosic materials and also increased water-absorbing capacity when there is incorporated in the gel up to about an equal weight of a cationic polymer such as a polyalkylenepolyamine, a polyalkylenimine, or a cationic polyacrylamide. The increased adhesion of both dry and water-swollen gels makes the invention useful in fire fighting and in the preparation of water-absorbing laminates.

3,758,642

PRODUCTION OF DENTAL PROSTHESIS

Heino Logemann, and Paul-Gunther Bruckmann, both of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 844,158, July 23, 1969, Pat. No. 3,649,608. This application Nov. 15, 1971, Ser. No. 198,944

Claims priority, application Germany, July 23, 1968, P 17 69 840.7; July 23, 1968, P 17 69 839.4

Int. Cl. C08f *15/18*

U.S. Cl. 260—885 **23 Claims**

An improved composition for use in the production of dental prostheses, comprising 85–60 parts of a polymer of methacrylic acid and 40–15 parts of an acrylic acid ester/methyl methacrylate or methacrylic acid ester/methyl methacrylate copolymer, where the ester content in the copolymer, the molecular weight of the polymer and copolymer, and the particle size of the polymer and copolymer are required to be within specified ranges to obtain a rapid start of processing and a processing time of at least one hour when the composition is used.

3,758,643

THERMOPLASTIC BLEND OF PARTIALLY CURED MONOOLEFIN COPOLYMER RUBBER AND POLYOLEFIN PLASTIC

William K. Fischer, Woodbury, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed Jan. 20, 1971, Ser. No. 108,225

Int. Cl. C08f *29/12*, *37/18*

U.S. Cl. 260—897 A **45 Claims**

Thermoplastic blends of partially cured monoolefin copolymer rubber (such as EPM or EPDM rubber) with a polyolefin resin (such as polypropylene) exhibit good physical properties and are reprocessable. The partial cure of the rubber is effected by heating the rubber with a curative such as a peroxide. The blends are used to make molded or extruded articles which have good physical properties without requiring vulcanization; preferred blends have the characteristics of thermoplastic elastomers.

3,758,644

O,N-DI-ALIPHATIC HYDROCARBONS-S-(N-MONOALKYLICARBANYL-METHYL)-THIONOTHIOLPHOSPHORIC ACID ESTER AMIDES

Claus Stolzer, Wuppertal-Vohwinkel; Ingeborg Hammann, Cologne; Gunter Unterstenhoffer, and Bernhard Homeyer, both of Opladen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

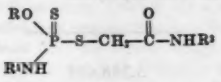
Filed July 8, 1971, Ser. No. 160,892

Claims priority, application Germany, July 15, 1970, P 20 35 074.7

Int. Cl. A01n *9/36*; C07f *9/16*

U.S. Cl. 260—940 **8 Claims**

O,N-di-aliphatic hydrocarbon-S-[N'-monoalkylcarbamyl-methyl]-thionothiolphosphoric acid ester amides of general formula



(I)

in which

R and R^1 are each an alkyl, cycloalkyl or alkenyl radical with up to six carbon atoms, and

R^2 is an alkyl radical with up to six carbon atoms carrying at least one halogen, cyano, lower alkoxy or alkylmercapto radical,

which possess insecticidal, acaricidal, and nematocidal properties.

3,758,645

CIS-THIOPHOSPHORIC ACID AMIDE ESTERS

Jean-Pierre Leber, and Karl Lutz, both of Basle, Switzerland, assignors to Sandoz Ltd., (a/K/A) Sandoz AG, Basle, Switzerland

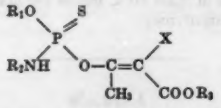
Filed July 14, 1970, Ser. No. 54,837

Claims priority, application Switzerland, July 18, 1969, 11028/69; Jan. 21, 1970, 797/70

Int. Cl. A01n *9/36*; C07f *9/16*, *9/72*

U.S. Cl. 260—941 **16 Claims**

The present invention concerns new thiophosphoric acid amide esters of the formula :



wherein R_1 is alkyl of one to four carbon atoms,

R_2 is alkyl of one to four carbon atoms,

R_3 is alkyl of one to five carbon atoms, and

X is hydrogen, chlorine or bromine.

The compounds are useful pesticides.

3,758,646

HALOGEN CONTAINING PHOSPHORUS MONOOLS

Nicodemus E. Boyer, Parkersburg, W. Va., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed July 16, 1970, Ser. No. 55,575

Int. Cl. C07f *9/08*, *9/40*; C08g *22/44*

U.S. Cl. 260—953 **36 Claims**

Novel halohydrocarbyl mono hydroxy containing phosphites and phosphonates are prepared. They can be converted to fire resistant polyurethanes or used as stabilizers and fire retardant additives in various compositions.

3,758,647

HALOGEN-SUBSTITUTED O,O-DIALKYL O-CYANOPHENYL PHOSPHATES

Shigeo Kishino; Yasuo Yamada; Akio Kudamatsu, and Toyohiko Kume, all of Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 1, 1970, Ser. No. 94,211
Claims priority, application Japan, Dec. 4, 1969, 44/96807
Int. Cl. C07f 9/12; A01n 9/36
U.S. Cl. 260—940 16 Claims

Halogen-substituted O,O-dialkyl O-cyanophenyl phosphates, i.e. O,O-dialkyl O-cyanophenyl phosphates containing one or two chlorine atoms on one of the alkyl groups and optionally containing a halogen atom on the phenyl ring which possess fungicidal, insecticidal and acaricidal properties.

3,758,648

NUCLEAR FUEL COMPACTS OF COATED PARTICLE FUEL

Derek William James Sturge, and John Richard Cox Gough, both of Winfrith, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Mar. 27, 1970, Ser. No. 23,397
Claims priority, application Great Britain, July 11, 1969, 35,156/69
Int. Cl. G21c 21/02
U.S. Cl. 264—0.5 4 Claims

In the forming of a nuclear fuel containing body composed of fission product retaining coated fuel particles in a matrix material it has been convenient to proceed by overcoating each particle with its share of the matrix material incorporating a polymerisable resin and then to press a mass of these in a die, which is heated first to melt the resin and then to effect polymerisation. This resulted in some edge particles protruding through their overcoating and having their fission product retaining coatings damaged. The present invention reduces the risk of such damage by providing a layer of matrix material between the cavity surfaces and the overcoated particles near the edge of the mass which, on pressing, acts as a buffer during the pressing stage and becomes an integral part of the body during the polymerisation stage.

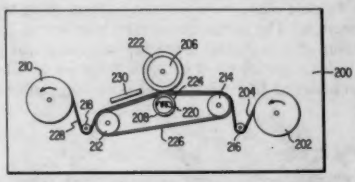
3,758,649

METHOD OF MANUFACTURING HOLOGRAPHIC REPLICAS

Joseph Ralph Frattarola, Hightstown, N.J., assignor to RCA Corporation, Princeton, N.J.

Continuation of Ser. No. 861,608, Sept. 29, 1969, abandoned. This application June 21, 1971, Ser. No. 155,254
Int. Cl. B29d 11/00
U.S. Cl. 264—1 8 Claims

A holographic replica in the form of a tape comprises a thermoplastic vinyl polymeric sheet having holographic information in the form of a relief pattern embossed on a surface thereof. The polymeric sheet generally has a thickness of 1 to 6 mils. and the embossed information generally has a contour depth of about up to 500A. The process for making the holographic replicas comprises embossing a pattern consisting of peaks and valleys from either an original holographic image or



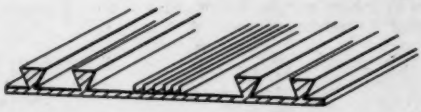
a holograph master onto a thermoplastic polymeric sheet at a temperature substantially below the flow temperature of the thermoplastic sheet and with a pressure of less than about 200 psi.

3,758,650

METHOD OF SEALING SHUTTERING AGAINST A DEFORMABLE SECTION OF AN EXTERNAL WATERSTOP FOR USE IN FORMING JOINTS IN CONCRETE

John Hurst, c/o Servicised Division, W. R. Grace Limited, 2 Caxton St., London, England

Continuation of Ser. No. 4,379, Jan. 20, 1970, abandoned.
Filed Jan. 13, 1972, Ser. No. 217,676
Claims priority, application Great Britain, Jan. 22, 1969, 3,699/69
Int. Cl. E04b 1/16
U.S. Cl. 264—34 7 Claims



Method of forming joints between cast concrete sections using a external waterstop where the waterstop is provided with an easily deformable section so that placement of stop end shuttering against said easily deformable section will effect a seal sufficient to prevent seepage of the cast concrete under said stop end shuttering.

3,758,651

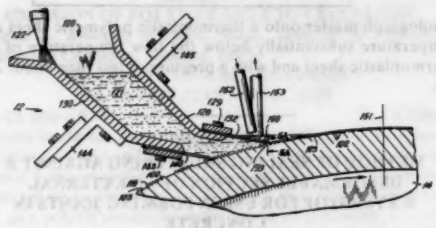
METHOD FOR THE CONTINUOUS FORMATION OF FORAMINOUS ELASTOMERIC SHEET MATERIAL FROM A COAGULABLE LIQUID

Peter D. Kaspar, Dover, Del., assignor to International Playtex Corporation, Dover, Del.

Division of Ser. No. 820,044, April 8, 1969, Pat. No. 3,489,154, which is a continuation-in-part of Ser. No. 704,783, Feb. 12, 1968. This application Mar. 10, 1971, Ser. No. 122,971
Int. Cl. B29h 11/02, 3/02
U.S. Cl. 264—39 16 Claims

A method is disclosed for the continuous formation of foraminous elastomeric sheet material from a coagulable liquid, such as a latex. The coagulable liquid is deposited on a forming means shown provided about the face of a rotatable cylinder, or alternatively along an endless conveyor belt. The liquid receiving surface of the forming means includes a space separated plurality of projections. The regions between these projections provide open faced locations for the reception of the coagulable liquid. A means for depositing the liquid as a layer on the forming surface is provided. This depositing means includes a spreading means at its exit which establishes

the top surface of the liquid. An active gelling or coagulating agent is applied to the liquid layer immediately emerging from under the spreading means to prevent the formation of a gelled or coagulated film over the projection top surfaces, and form a hole in the deposited layer at each projection location. In the disclosed embodiments the spreading means is provided by a flexible blade member which wipes along the tops of the projections. The surface coagulant also serves to prevent the build-up of a coagulum along the blade spreading region. The liquid is coagulated and stripped from the forming surface as sheet material. In order to reduce the coagulation time, a heat-



sensitive coagulable liquid may be used, with appropriate heat being applied to the forming surface.

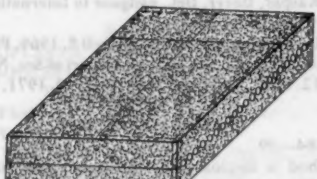
The sheet material formed on the above-described apparatus has a high degree of uniformity and may have a substantial number of holes per unit area. The number and placing of the holes is determined by the configuration of the forming surface. Areas of contrasting numbers and sizes of holes per unit area are utilized to form a lace-like material or to provide other desired characteristics in the sheet. The hole sizes and distribution of material may be suitably modified in order to prevent the creation of undue stresses in certain regions of the stretched material.

3,758,652

FORMING COOLING CHANNELS IN HOT THERMALLY BLOATED CERAMIC BLOCK TO FACILITATE COOLING

Aksel Jebens, Hosle, Norway, assignor to Sentralinstitutt for industriell forskning, Oslo, Norway

Filed May 13, 1971, Ser. No. 142,993
Claims priority, application Norway, May 15, 1970, 1873
Int. Cl. C04b *21/02, 41/02*
U.S. Cl. 264—43 **6 Claims**



To facilitate more rapid cooling while avoiding cracking in thermally bloated ceramic block, such as foamed clay, glass, slag, etc. channels are drilled through the block after the surface has solidified and cooling air is then blown through these channels in a controlled manner.

3,758,653

METHOD OF FORMING CLAY ARTICLES AROUND A COMPRESSIBLE MANDREL

Narendra Patel, 5074 N. Berkeley, and Bernard J. Roberts, 214 Roosevelt Rd., both of Whitefish Bay, Wis.

Continuation-in-part of Ser. No. 883,137, Dec. 8, 1969, abandoned. This application Sept. 17, 1971, Ser. No. 181,555
Int. Cl. C04b *33/28, 33/30*; B28b *7/06*
U.S. Cl. 264—56 **3 Claims**

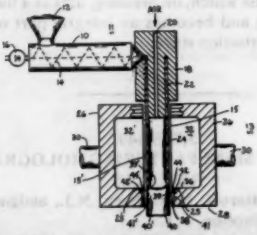
A hollow ceramic form is made by providing a disposable armature of suitable size and shape and placing wet pliable clay around the armature. The armature or mandrel is comprised of an inner layer of compressible material such as foam rubber and an outer initially rigid layer that softens after it has been in contact with the wet clay form for a short period of time. This compressible mandrel permits the clay body to shrink without cracking while acting as a support until the clay body is self-supporting. After allowing the clay to partially dry to the extent it is self-supporting, the armature is disposed of by combustion or dissolution and the form is then completely dried by conventional drying and shrinking techniques.

3,758,654

METHOD FOR BLOW MOLDING AN ARTICLE HAVING A TAIL PORTION WHICH CAN NOT COLLAPSE AGAINST AN ADJOINING WALL OF THE ARTICLE

Lawrence A. Martino, Trenton, N.J., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 5,682, Jan. 26, 1970. This application Oct. 14, 1971, Ser. No. 189,123
Int. Cl. B29c *17/07, 17/12*
U.S. Cl. 264—98 **3 Claims**



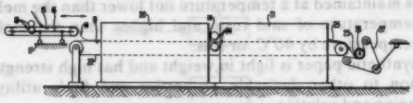
Method for preventing a tail portion of a blow molded article from collapsing against an adjoining wall of the article. Recesses in the walls defining the relief cavity within which the tail is shaped as the mold is closed form protrusions on both sides of the tail adjacent the adjoining wall which may be the article base, these protrusions coacting with the wall after opening the mold to prop the tail portion away from the wall and preferably maintain it in an erect position.

3,758,655

PROCESS FOR THE MANUFACTURE OF ROUGH BLOCKS

Michael Wienand, Sieburg, Germany, assignor to Dynamit Nobel AG, Troisdorf, Germany

Filed Apr. 29, 1970, Ser. No. 32,803
Int. Cl. C04b *43/00*; B29c *24/00*
U.S. Cl. 264—105 25 Claims



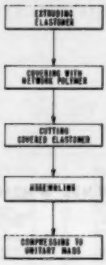
A process for the production of sheeting from chips of a thermoplastic material includes the steps of forming a granulated thermoplastic synthetic polymeric material transversely and longitudinally into a crude sheet, cutting the crude sheet into transverse strips, and cutting the transverse strips longitudinally into chips having approximately rectangular configurations. Thereafter the process further includes stacking the chips in a uniform distribution in a thin layer, heating the stacked chips to sinter the layer of stacked chips into a sheet, winding the sheet into a round multilayered block, radially compressing the multilayered block, cooling the compressed block and peripherally paring the compressed block into sheeting.

3,758,656

PROCESS FOR PREPARING AN ELASTOMER WHICH IS STRUCTURALLY SUPPORTED AGAINST EXCESSIVE COLD FLOW DURING SHIPMENT OR STORAGE

Chi-Kai Shih, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 732,872, May 29, 1963, abandoned. This application Mar. 25, 1970, Ser. No. 22,659
Int. Cl. B29f *3/10*; C08d *13/24*
U.S. Cl. 264—115 5 Claims



A process comprising forming an elastomer into elongated form, covering it with a sheet of ethylene polymer having a cold-flow of less than 30 percent at 60° C., and a melt index of about 0.1–100, dividing the covered elastomer into shorter units, and assembling these units into a compact mass. The elastomeric product is structurally supported against cold-flow.

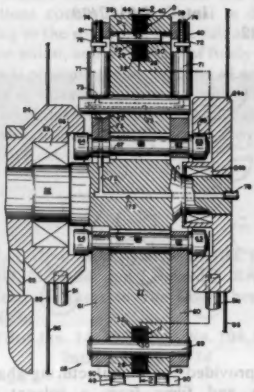
3,758,657

PRODUCTION OF A CONTINUOUS MOLDED PLASTIC STRIP

Marvin Menzin, Waltham; John H. Blanz, Concord; Andrew C. Harvey, Boston, and Sang Soon Rhee, Burlington, all of Mass., assignors to American Velcro, Inc., New York, N.Y.

Continuation of Ser. No. 824,597, May 14, 1969, abandoned. This application Dec. 1, 1971, Ser. No. 203,878
Int. Cl. B29d *5/00*
U.S. Cl. 264—166 4 Claims

A continuous molded plastic strip is produced using mold plates which have cavities therein for molding upstanding members or pile-like formations when moldable plastic material is applied under suitable pressure. Thereafter, plastic material is applied to the exposed ends of the pile-like formations while still in the cavities and a strip constituting a base member is formed having the pile-like protuberances integrally attached.



In addition to the apparatus a special method is proposed for producing the upstanding formations or members integrally attached to the base member.

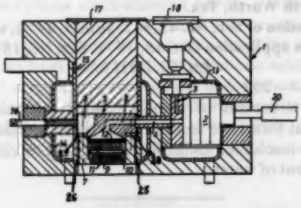
Certain related products are also proposed including a special form of hook member.

3,758,658

PROCESS FOR THE PRODUCTION OF TECHNICAL ENDLESS FILAMENTS OF HIGH-MOLECULAR WEIGHT LINEAR POLYMERS

Karlheinz Riggert, Oberstedten/Ts., Germany, assignor to Vickers-Zimmer Aktiengesellschaft, Planung und Bau von Industrieanlagen, Frankfurt, Germany

Filed July 24, 1970, Ser. No. 58,054
Claims priority, application Germany, Dec. 22, 1969, P 19 64 051.8
Int. Cl. B28b *3/20*
U.S. Cl. 264—176 F 8 Claims



Process for production of endless filaments from high molecular weight polymers having improved properties of low. $\eta_{intr.}$ loss, and few capillary breaks per 10 Km, in a melt spinning process wherein the polymer melt is supplied to a spinning beam at high pressure, the melt is thereafter passed through a flow path constriction which effects a pressure drop of from 150 to 1200 atmospheres and a melt enthalpy increase sufficient to internally heat each of the melt particles uniformly and independently of their position in the melt flow cross section, and thereafter maintaining the increased temperature of the melt by heating all the surfaces thereafter contacted by the melt.

3,758,659

METHOD OF MANUFACTURING FIBERS AND FILMS FROM AN ACRYLONITRILE COPOLYMER

Hiromu Takeda, Otsu, Japan, assignor to Toray Industries, Inc., Tokyo, Japan

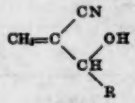
Filed Dec. 27, 1971, Ser. No. 212,374

Claims priority, application Japan, Dec. 26, 1970, 45/118975

Int. Cl. D01f 7/00

U.S. Cl. 264—182 **7 Claims**

A method is provided for manufacturing shaped articles especially fibers and films from a solvent solution of copolymer comprised of at least 85 mol % of acrylonitrile and at least one other compound of the formula



wherein R is hydrogen, an alkyl group, an aryl group or alkylaryl group. In the method of this invention the solvent solution is shaped and thereafter coagulated in a bath comprised of at least 60 percent by weight of methanol. The shaped articles, for example, filaments, because of their superior properties, are especially useful as textile fibers.

3,758,660

METHOD OF FORMING STRUCTURES FROM MICROCRYSTALLINE COLLAGEN

Orlando A. Battista, Forth Worth, Tex., assignor to Avicon, Inc., Forth Worth, Tex.

Continuation of Ser. No. 43,942, June 5, 1970, abandoned. This application Oct. 15, 1971, Ser. No. 189,750

Int. Cl. D01f 9/04

U.S. Cl. 264—202 **11 Claims**

Shaped structures of planar, tubular and molded three-dimensional forms are formed from concentrated dispersions of a water-insoluble, ionizable, partial salt of collagen and a small amount of water.

3,758,661

PROCESS FOR PRODUCING A SYNTHETIC PAPER

Sadao Yamamoto, Kyoto; Selichirou Honda, Ibaraki, and Akira Nishio, Takatsuki, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 24, 1970, Ser. No. 101,436

Claims priority, application Japan, Dec. 26, 1969, 44/539; Dec. 26, 1969, 44/540; Dec. 29, 1969, 44/219; Jan. 12, 1970, 45/3674; Jan. 12, 1970, 45/3675; Jan. 12, 1970, 45/3676; Jan. 16, 1970, 45/4656; Jan. 16, 1970, 45/4657

Int. Cl. B29c 17/02; B29d 7/22, 7/24

U.S. Cl. 264—230 **6 Claims**

A synthetic paper comprising an olefinic resin is produced by stretching an unstretched sheet of an olefinic resin such as polyethylene under the temperature conditions (1) or (2) below:

1. at a temperature lower than the melting temperature of said resin, the temperature of the inner layer of the sheet being different from that of both surface layers by at least 10°C., and
2. at a temperature such that either one of the surface layers and the inner layer is maintained at a temperature lower than the melting temperature of said resin, and the other is maintained at a temperature not lower than the melting temperature of said resin and higher than the melting temperature by 40°C. or less.

The synthetic paper is light in weight and has high strength in addition to other desirable properties and finds utility as packaging and printing.

3,758,662

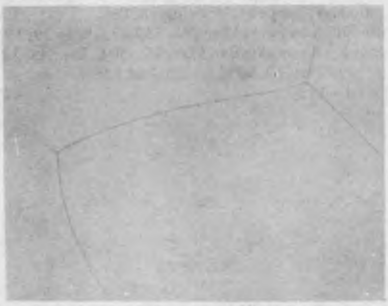
FORMING DENSE CARBIDE ARTICLES FROM MOLTEN REFRACTORY METAL CONTAINED IN CARBONACEOUS MOLD

Joseph M. Tobin, Pittsburgh, Pa., and Lee M. Adelsberg, Big Flats, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 777,948, Oct. 7, 1968, abandoned, which is a continuation-in-part of Ser. No. 513,448, Dec. 13, 1965, abandoned. This application Apr. 30, 1971, Ser. No. 139,229

Int. Cl. C04b 41/40, 41/44, 35/62

U.S. Cl. 264—332 **5 Claims**



250 X

NbC, FULLY DENSE & HOMOGENEOUS

A fully dense, homogeneous, single phased refractory monocarbide is prepared by heating a body of a refractory metal such as Ti, Zr, Hf, V, Nb Ta, and alloys of two or more of these metals in a mold of carbonaceous material heating the metal and mold in an inert atmosphere to a temperature above the melting point of the metal but not exceeding the metal carbide-carbon eutectic temperature of the charge for a period of time to cause formation of a full metal carbide body, and cooling to room temperature.

3,758,663

SEPARATION OF LEAD-210 FROM POLONIUM-210 AND BISMUTH-210

Harold W. Kirby, Dayton, Ohio, assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

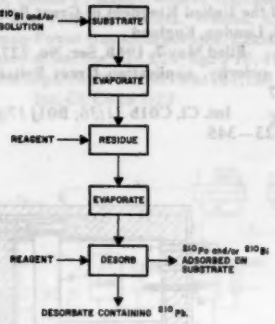
Filed May 18, 1972, Ser. No. 254,703

Int. Cl. G01g 57/00

U.S. Cl. 423—2 **4 Claims**

Separation of lead-210 from polonium-210 by disposing a

solution containing at least two of the nuclides wherein one is lead-210 on a platinum substrate, evaporating the solutions



and selectively leaching or desorbing the lead-210 with a reagent.

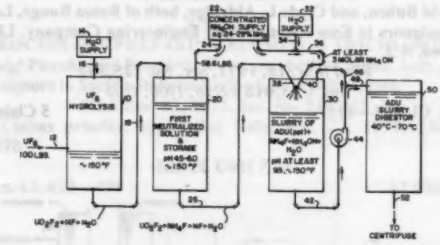
ERRATUM

For Class 423—15 see:
Patent No. 3,758,280

3,758,664
PROCESS FOR PRODUCING AMMONIUM DIURANATE

Lonnie D. Gerrald, Columbia, S.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 29, 1970, Ser. No. 102,451
Int. Cl. C01g *43/00*
U.S. Cl. 423—15 **2 Claims**



A process for the recovery of uranium as ammonium diuranate from aqueous solutions having uranyl and fluoride ions such as produced by hydrolyzing UF_6, and for reducing soluble uranium losses in the liquid waste stream, by forming a first neutralized solution of uranyl fluoride (UO_2F_2), with concentrated ammonium hydroxide, at a pH of about 4.5 to 6.0, and then by precipitating essentially all of the uranium, as ammonium diuranate, $[(NH_4)_2U_2O_7]$, (ADU), from the solution by adding concentrated ammonium hydroxide under controlled conditions preventing formation of any soluble fluoride complexes that would otherwise be ordinarily formed during the precipitation of the ammonium diuranate, to produce an ADU slurry which is calcinable to UO_2 having good ceramic pelletizing properties.

3,758,665
RECOVERY OF REFRACTORY METAL VALUES

Milos Vojkovic, Libertyville, Ill., assignor to Continental Ore Corporation, New York, N.Y.

Filed June 18, 1971, Ser. No. 154,686
Int. Cl. C01g *23/00, 25/00, 31/00, 33/00, 39/00, 41/00*
U.S. Cl. 423—56 **21 Claims**

Refractory metals such as vanadium are recovered from aqueous solutions containing the metal in the form of the oxide by adding to the solution a ferric salt and an ammonium salt of common anion, and a quantity of finely divided carbon. The vanadium is precipitated in the form of an iron-vanadium oxide complex in intimate admixture with the finely divided carbon. The admixture is recovered and can be reduced to produce a ferro-refractory metal-carbon alloy suitable for use as an additive in steel-making.

3,758,666
REMOVAL OF CARBON MONOXIDE FROM AIR

Ludo K. Frevel, Midland, and Leonard J. Kressley, Saginaw, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jan. 14, 1971, Ser. No. 106,555
Int. Cl. B01d *53/34*
U.S. Cl. 423—247 **9 Claims**

Air containing carbon monoxide is contacted with a palladium catalyst under ambient conditions. It is believed that carbon monoxide removal is achieved by initial adsorption and subsequent oxidation to carbon dioxide on the catalyst surface. When the catalyst loses its effectiveness, it has been further discovered that simply reducing the pressure on the catalyst restores lost activity. The catalyst may also be reactivated by purging with a gas and heating.

3,758,667
PROCESS FOR THE PREPARATION OF MORDENITE

Herman W. Kouwenhoven, and John Cole, both of 3, Badhuisweg, Amsterdam, Netherlands

Filed Mar. 18, 1971, Ser. No. 125,845
Claims priority, application Netherlands, Apr. 3, 1970, 7015942
Int. Cl. C01b *33/28*
U.S. Cl. 423—118 **8 Claims**

High purity mordentie having a very small particle size is prepared at temperatures below 160°C by heating an aqueous mixture of amorphous silica-alumina having a silica/alumina molar ratio between 9.5 and 12.5 and one or more sodium compounds wherein at least 70 mol percent of the sodium, as Na_2O, originates from sodium salts of polybasic acids having a pK value >10 at 18°C for the highest dissociation step. The relation between the Na_2O/Al_2O_3 molar ratio, m, in the starting mixture and the applied reaction temperature, t, which is 160°C or lower, is $m = 8.3-0.06\,(t-100) \pm 2.3$.

3,758,668
SO_2 ABSORPTION SYSTEM WITH REGENERATION OF ABSORBENT

Walter C. Lapple, and Robert E. Matty, both of Alliance, Ohio, assignors to The Babcock of Wilcox Company, New York, N.Y.

Filed Aug. 11, 1970, Ser. No. 62,930
Int. Cl. B01d *47/02*; C01b *17/60*
U.S. Cl. 423—242 **11 Claims**

A system for removing gaseous SO_2 from the flue gases resulting from the combustion of carbon and sulphur containing fuel, where the absorbent liquid contains magnesium and the product liquid consists of magnesium sulphite crystals. The magnesium sulphite crystals are treated to reduce the water of hydration, and then pelletized with carbon for sub-

sequent thermal treatment to release reactive MgO particles reuseable in the absorption system and a gaseous effluent containing SO_2. The gaseous SO_2 can then be converted to sulphuric acid or sulphur solids.

3,758,669

PROCESS FOR THE PREPARATION OF URANIUM NITRIDE POWDER

Ralph A. Potter, Kingston, and Victor J. Tennery, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Nov. 23, 1971, Ser. No. 201,276

Int. Cl. C01g *43/00, 56/00, 57/00*

U.S. Cl. 423—254 **9 Claims**

A process is disclosed for the preparation of finely divided uranium nitride, (uranium, plutonium) nitride, americium nitride or neptunium nitride by incrementally dehydriding the corresponding metal hydride and nitriding the dehydrided increment. The process is carried out in a cyclic manner until all of the metal hydride has been converted to metal nitride.

3,758,670

PRODUCTION OF PREDOMINANTLY CRYSTALLINE SOLS

John P. McBride, Oak Ridge; Kenneth H. McCorkle, Powell, and William L. Pattison, Knoxville, all of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Continuation-in-part of Ser. No. 814,311, April 8, 1969, Pat. No. 3,629,133. This application Aug. 1, 1969, Ser. No. 846,835. The portion of the term of this patent subsequent to Dec. 21, 1988, has been disclaimed.

Int. Cl. C01g *43/02*

U.S. Cl. 423—261 **2 Claims**

The present invention relates to a method for forming a stable, predominantly crystalline sol from an acid-deficient solution of a hydrous metal oxide in which the metal is in the +4 oxidation state which comprises heating said solution to a crystallizing temperature to cause an increase in conductivity of said solution, removing anion at the crystallizing temperature to a condition of further acid deficiency at a rate which approximates the rate of release of free acid to the aqueous phase of the resultant sol, and then adjusting the anion-to-metal ratio of the sol to a desired anion-to-metal ratio.

3,758,671

PRODUCTION OF POLYPHOSPHATE HYDRATED TO AN EXTENT OF MORE THAN 75% AND HAVING AN APPARENT DENSITY OF BETWEEN 400 AND 600 GRAMS/LITER

Joachim Kandler, Lechenich; Karl Merkenich, Efferen; Klaus Henning, Hurth, and Wolf-Dieter Pirig, Euskirchen, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany

Filed Aug. 9, 1971, Ser. No. 170,306

Claims priority, application Germany, Aug. 10, 1970, P 20 39 595.3

Int. Cl. C01b *15/16, 25/26*

U.S. Cl. 423—315 **4 Claims**

Production of sodium tripolyphosphate hydrated to an extent of more than 75 percent and with an apparent density of between 400 and 600 grams/liter by spraying water on to phase-Iacontaining sodium tripolyphosphate pneumatically maintained in suspension in a reactor and flowing a stream of gas through the reactor so as to dissipate reaction heat in excess. More particularly, sodium tripolyphosphate with an apparent density of more than 800 grams/liter and containing between 50 and 80 percent of phase-I, is fluidized by flowing a stream of gas through the reactor, countercurrently with respect to the sodium tripolyphosphate.

3,758,672

MANUFACTURE OF SILICON CARBIDE

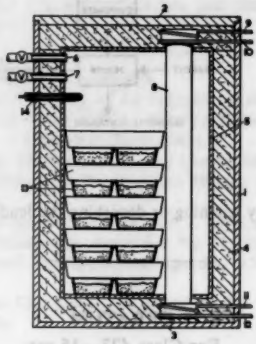
Thomas John Lewis, Bishops Stortford, England, assignor to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 7, 1968, Ser. No. 727,160

Claims priority, application Great Britain, May 8, 1967, 21,197/67

Int. Cl. C01b *31/36;* **B01j** *17/02*

U.S. Cl. 423—345 **5 Claims**



A process for the manufacture of silicon carbide whiskers comprises heating solid-phase carbon and solid-phase silicon at a temperature of at least 1,100°C, said heating being carried out in the presence of a substrate heated to a temperature of at least 1,000°C and in an atmosphere comprising hydrogen and chlorine, whereby silicon carbide whiskers are formed upon the substrate.

3,758,673

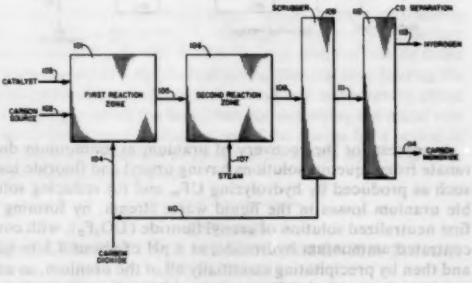
PROCESS FOR THE PRODUCTION OF A CARBON MONOXIDE CONTAINING GAS

David Buben, and Clyde L. Aldridge, both of Baton Rouge, La., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Mar. 18, 1971, Ser. No. 125,582

Int. Cl. C01b *31/18, 1/08, 1/02*

U.S. Cl. 423—415 **5 Claims**

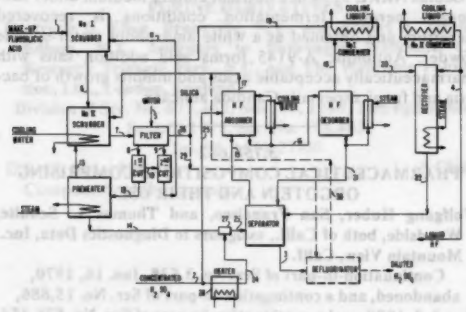


A process for producing carbon monoxide and hydrogen which comprises contacting a carbon dioxide containing gas with a carbonaceous material in the presence of a cesium salt catalyst in a reaction zone operating at temperatures below 1,600° F.

3,758,674
PROCESS FOR PRODUCING ANHYDROUS HF FROM FLUOSILICIC ACID

William R. Parish; James C. Kelley; Albert Giovanetti, all of Lakeland, Fla., and William A. Lutz, Weston, Conn., assignors to Wellman-Power Gas Incorporated, Lakeland, Fla.

Continuation-in-part of Ser. No. 816,229, April 15, 1969. This application Sept. 16, 1971, Ser. No. 181,187
Int. Cl. C01b 7/22
U.S. Cl. 423—483 25 Claims

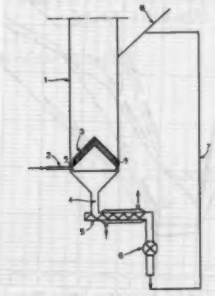


Concentrated fluosilicic acid is premixed with concentrated sulfuric acid under superatmospheric pressure in the essential absence of a separate vapor phase. The mixture is introduced to a reduced pressure, high temperature separation zone to release a gaseous overhead mixture of HF and SiF_4 and a liquid bottoms of diluted sulfuric acid. The overhead mixture is contacted with cooler concentrated sulfuric acid to selectively absorb the HF. The resulting sulfuric acid is conducted to a desorption zone where it is heated to liberate the absorbed HF. The SiF_4 can advantageously be used to concentrate weaker fluosilicic acid feed streams, and silica is made in this reaction. The diluted sulfuric acid bottoms from the separation zone can advantageously be contacted with silica to convert any entrained HF to SiF_4 and water.

3,758,675
PROCESS FOR PREPARING ALUMINUM TRICHLORIDE

Luigi Piccolo, and Benedetto Calcagno, both of Milan, Italy, assignors to Societa Italiana Resine S.p.A., Milan, Italy

Filed Dec. 22, 1971, Ser. No. 210,722
Claims priority, application Italy, Dec. 23, 1970, 33463 A/70
Int. Cl. C01f 7/58
U.S. Cl. 423—495 12 Claims

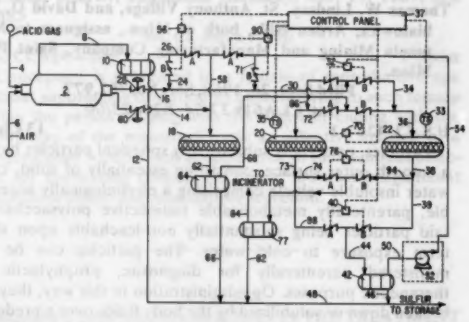


A continuous process for producing aluminum trichloride by reacting in a fluid-bed reactor, at 310°–580°C, a chlorine-containing gas with a fluidised bed of aluminum particles, which comprises feeding the chlorine-containing gas at the bottom of the fluidised bed of aluminum particles, through a gas distributor whose upper surface is inclined with respect to the vertical and discharging continuously said fluidised bed of aluminum particles through an outlet means which is located at the lowermost part of said inclined upper surface. The dischared particles are then cooled and recycled to the top end of the fluidised bed with fresh aluminum particles. At the top of the fluid-bed reactor, an aluminum trichloride containing gaseous stream is discharged and aluminum trichloride is separated therefrom.

3,758,676
METHOD FOR RECOVERY OF ELEMENTAL SULFUR FROM SOUR GAS

Clifton S. Goddin, Jr., and Neal R. Montgomery, both of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed June 21, 1971, Ser. No. 155,050
Int. Cl. C01b 17/04
U.S. Cl. 423—573 5 Claims



This process takes advantage of the favorable equilibrium that exists for the catalytic reaction of H_2S with SO_2 at temperatures of the order of 270° to about 300°F while at the same time offering considerable flexibility in the manner in which the various streams can be handled. Because of the fact that one of the reactors in a multi-reactor plant can always be operated at an effluent temperature of at least 600°F, the process assures good clean up of feed streams containing CS_2 and COS. Also, valving and piping are simplified by allowing one reactor to operate as a conventional Claus reactor while the other two reactors operate alternately at temperatures above and below the sulfur dew point.

3,758,677
PREPARATION OF NON-SOLVATED ALUMINUM HYDRIDE

Theodore C. Kraus, Cheshire, and Donald J. Mangold, Orange, both of Conn., assignors to Olin Mathieson Chemical Corporation, New Haven, Conn.

Filed Oct. 23, 1965, Ser. No. 505,314
Int. Cl. C01b 6/00
U.S. Cl. 423—645 4 Claims

1. A process for the preparation of non-solvated aluminum hydride which comprises (A) reacting hydrogen chloride with an excess of an alkali metal aluminum hydride of the formula:

$$M\,AlH_4$$

where M is an alkali metal selected from the group consisting of lithium, sodium and potassium and in the presence of a lower dialkyl ether of the formula:

$$R_1OR_2$$

wherein R_1 and R_2 are alkyl radicals having 1 to 5 carbon atoms, the mole ratio of the said hydrogen chloride reacted

with the said alkali metal aluminum hydride being within the range of from about 0.33 to about 0.95; (B) separating liquid and solid phases of the resulting reaction mixture and adding from about 0.05 to 0.20 mole of lithium borohydride per mole of starting alkali metal aluminum hydride to the said liquid phase; (C) adding an aromatic hydrocarbon selected from the group consisting of benzene, toluene and xylene in an amount of from 1 to about 6 times by volume of the said liquid phase; (D) removing the major portion of the lower dialkyl ether to yield a slurry containing solvated aluminum hydride; (E) heating the said slurry at a temperature of from about 35 to about 100° C. and for a period of time sufficient to remove the lower dialkyl ether associated with the aluminum hydride whereby a non-solvated aluminum hydride product is obtained and (F) recovering the non-solvated aluminum hydride.

3,758,678

BIODEGRADABLE RADIOACTIVE POLYSACCHARIDE PARTICLES

Thomas W. Lindsay, St. Anthony Village, and David O. Kubiatowicz, Arden Hills, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Sept. 26, 1968, Ser. No. 762,977
Int. Cl. A61k *27/04*; B29c *23/00*
U.S. Cl. 424—1 **13 Claims**

Particles, preferably substantially spherical particles having a smooth outer surface, consisting essentially of solid, cold-water insoluble vehicle comprising a physiologically acceptable, parenterally metabolizable radioactive polysaccharide, said particles being substantially non-leachable upon short term exposure to cold water. The particles can be administered parenterally for diagnositc, prophylactic or therapeutic purposes. On administration in this way, they are broken down or solubilized by the body fluids over a predeterminable period ranging from minutes to several days, whereupon the radioisotopic material is excreted from the body thus limiting exposure to the radiation.

3,758,679

PROPOXYPHENE NAPSYLATE TIMED-RELEASE PARTICLES

Werner M. K. Seidler, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianpolis, Ind.

Filed Feb. 22, 1972, Ser. No. 227,920
Int. Cl. A61k *27/12*
U.S. Cl. 424—19 **14 Claims**

A pharmaceutical preparation is described which comprises particles of propoxyphene napsylate having timed-release properties.

3,758,680

COMPOSITION OF MATTER AND METHOD OF USE

Norman Leo Henderson, Park Ridge, N.J.; August Joseph Bruno, Chester, N.Y., and James Joseph Drain, Trenton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 22, 1971, Ser. No. 127,024
Int. Cl. A61k *9/00*
U.S. Cl. 424—22 **5 Claims**

A composition of matter consisting of sulfamethoxypyridazine or sulfaethoxypyridazine, a bismuth subcarbonate or bismuth subnitrate and ethylcellulose in a sustained release formulation which provides prolonged high sulfonamide blood levels in the treatment of warm-blooded and particularly ruminant animals. A method of using said compositions for controlling bacterial infections is described.

3,758,681

ANTIFUNGAL ANTIBIOTIC A-9145 AND PROCESS FOR PRODUCTION THEREOF

Robert L. Hamill, New Ross, and Marvin M. Hoehn, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 57,438, July 23, 1970, abandoned. This application May 22, 1972, Ser. No. 255,864
Int. Cl. A61k *21/00*
U.S. Cl. 424—118 **3 Claims**

Antibiotic A-9145 produced by culturing Streptomyces griseolus NRRL 3739 in a nutrient culture medium under submerged aerobic fermentation conditions is recovered therefrom and obtained as a white amorphous water-soluble powder. Antibiotic A-9145 forms acid addition salts with pharmaceutically acceptable acids and inhibits growth of bacteria and fungi, especially Candida albicans.

3,758,682

PHARMACEUTICAL COMPOSITIONS COMPRISING ORGOTEIN AND THEIR USE

Wolfgang Huber, San Francisco, and Thomas L. Schulte, Woodside, both of Calif., assignors to Diagnostics Data, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 3,538, Jan. 16, 1970, abandoned, and a continuation-in-part of Ser. No. 15,886, March 2, 1970, and a continuation-in-part of Ser. No. 576,454, Aug. 31, 1966, abandoned, and a continuation-in-part of Ser. No. 494,048, Oct. 8, 1965, abandoned. This application Mar. 23, 1972, Ser. No. 237,507
Int. Cl. A61k *27/00*; C07g *7/04*
U.S. Cl. 424—177 **9 Claims**

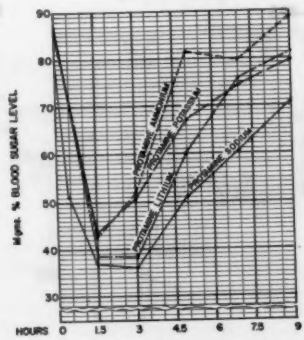
Pharmaceutical compositions comprising, in a pharmaceutically acceptable carrier, an effective unit dosage amount of orgotein, the non-proprietary name assigned to members of a family of globular, soluble metalloprotein congeners whose compact conformation is maintained by chelated divalent metals, usually about 2 GAPM each of Cu and Zn, in isolated, substantially pure or pure form, some of which metalloproteins, in various states of purity, have been named erythrocuprein, hepatocuprein, cerebrocuprein, cytocuprein and superoxide dismutase, are useful in the treatment of inflammatory, shock and toxic conditions.

3,758,683

INSULIN PRODUCT

Richard L. Jackson, 951 N. Arlington Ave., Indianapolis, Ind.

Filed Apr. 30, 1971, Ser. No. 139,120
Int. Cl. A61k *17/02*
U.S. Cl. 424—178 **4 Claims**



The invention relates to a combination of protamine with an insulin salt. The insulin salt is derived by crystallization of in-

sulin in the presence of ions of an alkali metal or metalloid such as sodium, potassium, lithium, cesium or ammonium at an alkaline pH range. The protamine is present in an amount from about 0.2 to about 1.5 mg. of protamine for each 100 units of insulin. The insulin salt and protamine form an insoluble complex at a pH from 6.5 to 8 in an aqueous medium, which complex when dried is easily reconstituted without activity loss.

3,758,684

TREATING DNA VIRUS INFECTIONS WITH AMINO PURINE DERIVATIVES

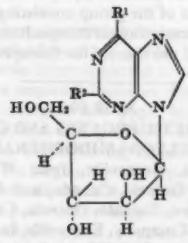
Gertrude B. Elion, Bronxville, N.Y., and Robert A. Strelitz, Edison, N.J., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C. and The Wellcome Foundation, Ltd., London, England

Division of Ser. No. 877,443, Nov. 17, 1969. This application Sept. 7, 1971, Ser. No. 178,483

Int. Cl. A61k *27/00*

U.S. Cl. 424—180 5 Claims

Compounds of the formula



where R^1 is amino or lower alkylamino, R^2 is amine or hydrogen and pharmaceutically acceptable salts thereof, provided that when R^1 is amino, R^2 is amino. The compounds are useful as immune suppressants and as antivirals.

3,758,685

CERTAIN PHOSPHORUS CONTAINING AMIDINE COMPOUNDS AS INSECTICIDES AND ACARICIDES

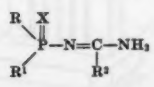
Ferenc M. Pallos, Pleasant Hill, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Division of Ser. No. 885,263, Dec. 15, 1969. This application Jan. 11, 1971, Ser. No. 105,688

Int. Cl. A01n *9/36*

U.S. Cl. 424—211 9 Claims

Compounds of the formula:



in which R is lower alkyl or lower alkoxy; R^1 is lower alkoxy or lower alkylthio; R^2 is hydrogen, lower alkyl, phenyl, mono or di-substituted phenyl; and X is oxygen when R^1 is lower alkylthio and sulfur when R^1 is lower alkoxy as insecticides and acaricides, and a process for preparing the compounds above having X be oxygen.

3,758,686

METHOD OF USING STEROID ACETONIDES

George Madison Sieger, Montvale, N.J.; Walter Shultz, Spring Valley, N.Y., and Charles Krieger, Clifton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 7, 1971, Ser. No. 205,762

Int. Cl. A61k *17/00*

U.S. Cl. 424—241 7 Claims

A method of treating topical inflammation in mammals by the administration of triamcinolone acetonide-21-valerate in a pharmaceutically acceptable carrier.

3,758,687

CONTRACEPTIVE METHOD AND COMPOSITION

Joachim Ufer; Karl-Heinz Kimbel, and Ursula Lachnit, all of Berlin, Germany, assignors to Schering AG, Berlin, Germany

Continuation of Ser. No. 721,614, Apr. 16, 1968, abandoned. Filed Apr. 20, 1971, Ser. No. 135,814

Claims priority, application Germany, Apr. 19, 1967, Sch 40583

Int. Cl. A61k *17/00*

U.S. Cl. 424—243 1 Claim

Conception is prevented in a female of reproductive age without suppressing ovulation by administering to such female within the period starting with the fifth and ending with the eighth day of the menstrual cycle an effective amount of a progestogene which when administered in such amount effective for preventing conception has at most an insignificant suspension effect on gonadotropin secretion.

3,758,688

SUBSTITUTED SULFONANILIDES IN THE TREATMENT OF INFLAMMATION

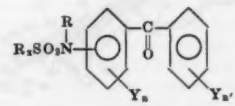
Jerry E. Robertson, North Oaks; Joseph K. Harrington, Edina, and Donald C. Kvam, North Oaks, all of Minn., assignors to Riker Laboratories, Inc., Northridge, Calif.

Continuation-in-part of Ser. No. 45,413, June 11, 1970, abandoned, which is a division of Ser. No. 832,824, June 12, 1969, Pat. No. 3,576,866, which is a continuation-in-part of Ser. Nos. 588,338, Oct. 21, 1966, abandoned, and Ser. No. 719,741, April 8, 1968, abandoned. This application May 24, 1972, Ser. No. 256,377

Int. Cl. A61k *27/00*

U.S. Cl. 424—324 17 Claims

Benzoylhaloalkanesulfonanilides of the general type



wherein R_r is a haloalkyl group having up to four carbon atoms and at least one halogen atom bonded to the alpha carbon atom or if there is no halogen bonded to said alpha carbon atom, having at least 2 halogen atoms bonded to the beta carbon atom, R is hydrogen, alkyl or alkenyl containing not more than three carbon atoms, or a pharmaceutically acceptable cation; each Y is selected from hydroxy, halogen and alkyl, alkoxy, haloalkyl and haloalkoxy groups having up to 4 carbon

atoms and n and *n'* are each 0–3. These compounds and their salts have valuable pharmacological activity as anti-inflammatory agents.

3,758,689

METHOD OF TREATING PERIODONTAL DISEASE

Irving Rapfogel, 554 S. Summit, Fort Worth, Tex.

Filed Mar. 24, 1971, Ser. No. 127,782
Int. Cl. A61k *5/00*
U.S. Cl. 424—329 3 Claims

Self-administerable method of treating periodontal disease by providing a dilute aqueous benzalkonium chloride solution, pumping the solution through an orifice to provide a pulsating jet stream that is capable of penetrating directly into the periodontal pockets associated with periodontal disease, and applying the jet stream to diseased gingival tissue and into the periodontal pockets.

3,758,690

PHARMACEUTICAL COMPOSITIONS CONTAINING N-CYCLOPROPYL-1-AMINO INDANES AND USE OF SUCH N-CYCLOPROPYL COMPOUNDS AS HYPOTENSIVES

Maurice Ward Gittos, Slough; John William James, Langley, and Leslie Frederick Wiggins, Herkshire, all of England, assignors to Aspro-Nicholas Limited, London, England

Division of Ser. No. 835,841, April 15, 1969, Pat. No. 3,629,463, which is a division of Ser. No. 652,029, July 10, 1967, abandoned, which is a continuation-in-part of Ser. No. 623,470, March 15, 1967, abandoned, which is a continuation-in-part of Ser. No. 385,761, July 28, 1964, abandoned. This application June 5, 1970, Ser. No. 57,391
Claims priority, application Great Britain, Aug. 2, 1963, 30,832/63; July 16, 1966, 32,067/66
Int. Cl. A61k *27/00*
U.S. Cl. 424—330 8 Claims

N-cyclopropyl-1-aminoindanes have useful pharmacological properties in that, when administered to hypertensive animals, including humans, they lower the blood pressure of these animals. Pharmaceutical compositions containing these compounds may be administered orally, rectally or parenterally in dosage unit form, each dosage unit containing from 1 to 150 mg. of active ingredient. Up to two or three dosage units may be administered four times daily. Reduced dosages may be used for maintenance therapy.

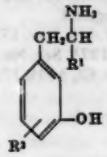
3,758,691

NEW SUBSTITUTED HYDROXYPHENYL-ALKYLAMINES IN THE TREATMENT OF MENTAL ILLNESS

Per Arvid Emil Carlsson, Goteborg; Hans Rudolf Corrodi, Askim; Sven Goran Hallihagen, Molndal, and Ulf Krister Junggren, Goteborg, all of Sweden, assignors to Aktiebolaget Hassle, Gothenburg, Sweden

Division of Ser. No. 811,662, March 28, 1969, Pat. No. 3,655,737. This application Aug. 11, 1971, Ser. No. 171,018
Claims priority, application Sweden, Apr. 1, 1968, 4332/68
Int. Cl. A61k *27/00*
U.S. Cl. 424—330 4 Claims

Compounds represented by the formula



wherein R^1 is a member of the group consisting of CH_3, C_2H_5 and C_3H_7, and R^2 in position 2, 4, 5 or 6 on the benzene nucleus is a member of the group consisting of F, Cl, Br, CH_3, C_2H_5 and C_3H_7, pharmaceutical compositions containing these compounds, and the use thereof for therapeutic purposes.

3,758,692

SYMPATHOMIMETIC PROCESS AND COMPOSITIONS EMPLOYING SULFONAMIDOPHENALKYLAMINES

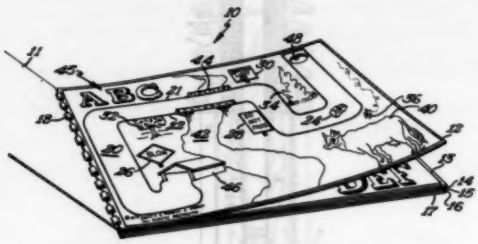
Aubrey A. Larsen, Evansville, Ind.; William A. Gould, deceased, late of Ontario, Canada, and Barbara E. Gould, legal representative, Toronto, Ontario, Canada, assignors to Mead Johnson & Company, Evansville, Ind.

Division of Ser. No. 817,272, April 14, 1969, Pat. No. 3,574,741, which is a continuation-in-part of Ser. No. 507,664, Nov. 15, 1965, abandoned. This application Dec. 14, 1970, Ser. No. 98,129
Int. Cl. A61k *27/00*
U.S. Cl. 424—321 8 Claims

Pharmaceutical compositions comprised of phenalkylamine compounds having both hydroxyl and sulfonamido groups in the phenyl ring are described. The sulfonamido-phenalkylamines are useful in decongestant and sympathomimetic processes.

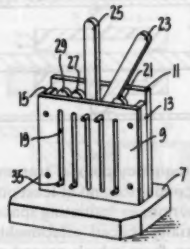
ELECTRICAL

3,758,693
INSTRUCTIONAL AND AMUSEMENT DEVICE
David F. Ebert, 2119 S. 5th St., Apt. 4, Minneapolis, Minn.
Filed Nov. 13, 1972, Ser. No. 305,969
Int. Cl. G09b *19/00*
U.S. Cl. 35—8 R **11 Claims**



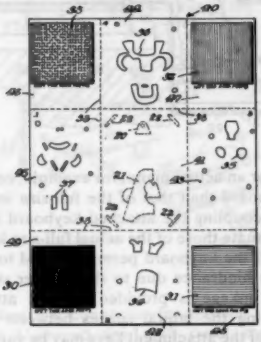
An instructional and amusement device is disclosed which, in the preferred embodiment, is in the form of a book of several pages edgewise interconnected to allow the successive turning of pages in a sequential manner. Each page includes a path having a beginning on the page, having a convoluted traversal of the page, and having an end surrounding an aperture in the page. An object having significant magnetic properties is placed at the beginning of the path, and a magnet is placed under the book-like device to thus allow the object to be moved over the path under magnetic attraction between the magnet and the object under the control of a user until the object drops into an aperture in the page and onto the next page. The then exposed page is removed and the process is repeated upon the next page.

3,758,694
SIMULATED HAND
John F. Lobush, and Arlene J. Lobush, both of 709 Loma Prieta, Aptos, Calif.
Filed Apr. 12, 1972, Ser. No. 243,220
Int. Cl. G09b *19/02*
U.S. Cl. 35—31 R **1 Claim**



A simulated hand is provided for use primarily as a teaching aid wherein the hand has a representation of fingers which may be raised or lowered as well as moved from side-to-side so that any combination can be made of the "fingers" to simulate the fingers of a hand.

3,758,695
NOVELTY AND EDUCATIONAL IMAGE TRANSFER UNIT
Carol C. Goodman, Skokie, and William Feibel, Des Plaines, both of Ill., assignors to Chicago Display Company, Melrose Park, Ill., by said Goodman
Filed July 30, 1971, Ser. No. 167,611
Int. Cl. G09b *11/04*
U.S. Cl. 35—26 **3 Claims**



A novelty and educational image transfer unit is provided which includes a substrate having an inner, central area and a plurality of outer areas in surrounding relationship therewith, a folding assembly for permitting each of the outer areas to fold over and contact the inner area, and a series of individual designs on each of the outer areas, each design being capable of receiving a transferable coloring composition so that as each outer area is folded over the inner area the coloring composition carried by the design for that area is transferred to the inner area forming a composite multicolored design thereon.

3,758,696
FOOT OPERATED ELECTRIC BASS
Meredith E. Miller, Box 73, R No. 1, Lockbourne, Ohio
Filed May 11, 1972, Ser. No. 252,284
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.16 **15 Claims**

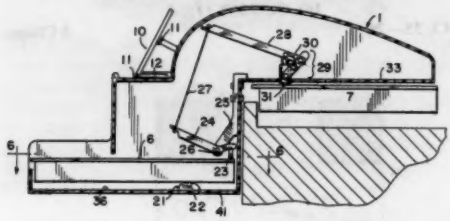
A floor mounted electric bass played solely by striking its strings with a player's shoe and thereby depressing its strings against its frets. The base is a stringed instrument with a neck having two transversely oriented fretted surfaces. One string, or one string unit comprising multiple strings tuned as a unit for playing in unison, is secured above each of the fretted surfaces and when not depressed is contacted by a vibration inhibiting pad. A magnetic pickup converts the string vibration to electrical signals when a string is depressed against a fret.

3,758,697

KEYBOARD REACH EXTENDERS

David S. Goldsmith, 8359 Crandon Ave., Chicago, Ill.

Filed Jan. 19, 1972, Ser. No. 218,860
Int. Cl. G10c 3/12
U.S. Cl. 84—425 3 Claims



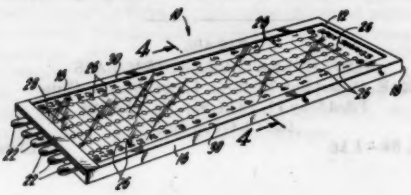
An attachment for an actual piano, for example, comprising a smaller size keyboard than that of the full-size instrument with a linkage for coupling the attached keyboard in such a way that its keys actuate those of the actual full-size keyboard. The reduced size of the keyboard permits a child to play the instrument without hindrance due to the smaller size of his hands. A second linkage is provided for the attachment keyboard for altering the lateral spaces between the keys whereby the reach of the attachment keys may be varied to accommodate the reach of a user of the attachment.

3,758,698

FRETTED INSTRUMENT FINGERBOARD CHORD SLIDE RULE

Joseph F. Matyas, 218 2nd St., Hicksville, Long Island, N.Y.

Filed Oct. 12, 1972, Ser. No. 296,857
Int. Cl. G10b 15/00
U.S. Cl. 84—485 10 Claims



A 248/229 slide rule that simulates the finger board of fretted instruments is provided. The slide rule includes a housing having a plurality of longitudinally extending channels or guideways each of which is adapted to receiving an axially displaceable slide, one for each string of the instrument. A mask is provided having a number of openings arranged in a grid-like pattern that overlays the channels and the slides and which coincides with the strings and the frets of the instrument. One surface of each of the slides includes a reference mark that is visible as a distinctively colored dot through a selected one of the openings in the mask while the opposite or rear surface of each slide includes a sequential array of musical notes of the chromatic scale of the respective strings. The written note symbols on the rear surface of each slide successively register through openings in the rear surface of the housing in order to identify by letter the designation of the corresponding musical note indicated by the reference mark.

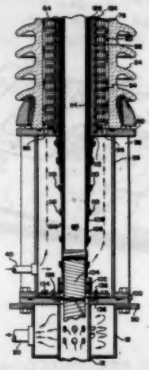
The aforementioned abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,758,699

APPARATUS AND METHOD FOR DYNAMICALLY COOLING A CABLE TERMINATION

George E. Lusk, Downers Grove, and James H. Nicholas, Flossmoor, both of Ill., assignors to G & W Electric Specialty Company, Blue Island, Ill.

Filed Mar. 15, 1972, Ser. No. 234,898
Int. Cl. H02g 15/22
U.S. Cl. 174—19 27 Claims



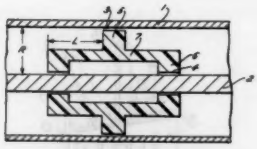
A cable termination cooling system circulates an insulating dielectric liquid through a heat exchanger and selected internal regions of a high voltage cable termination, to dynamically cool, without degradation of the dielectric characteristics of the cable termination. The current carrying capacity of the cable within the termination is thereby effectively increased, together with the energy transferring capabilities of the cable system with which it is associated.

3,758,700

INSULATING SPACE FOR HIGH-FREQUENCY COAXIAL CABLES AND ELECTRICAL FITTINGS ASSOCIATED WITH IT

Hans Leo Ditscheid, Refrath, Germany, assignor to Felten & Guilleaume Kabelwerke Aktiengesellschaft, Cologne, Germany

Filed Oct. 6, 1971, Ser. No. 187,048
Claims priority, application Germany, Oct. 13, 1970, P 20 50 123.9
Int. Cl. H01b 11/18
U.S. Cl. 174—28 11 Claims

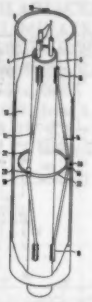


For use in high-frequency coaxial transmission cables having a tubular outer conductor and at least one inner conductor axially supported therein, an insulating spacer to maintain said conductors in coaxially spaced relationship comprised of a hollow body portion from which extend radially outwardly and inwardly a plurality of contact members in form of flanges or ribs. The contact members are axially and/or circumferentially offset from each other along the body portion and are adapted in operation of the cable to engage the inner and outer conductors of the cable. The body portion of the spacer may be a true cylinder or may be in the form of a hollow truncated cone for increased pressure resistance in instances where the cable is filled with pressurized gas.

3,758,701
SPACER MEANS FOR A SUPERCONDUCTIVE ELECTRICAL CABLE

Fritz Schmidt, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 10, 1972, Ser. No. 279,393
Claims priority, application Germany, Aug. 17, 1971, P 21 71 202.2
Int. Cl. H01b 9/04; H01v 11/00
U.S. Cl. 174—28 11 Claims

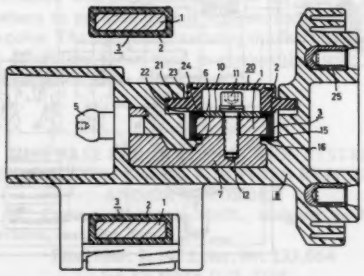


An electrical cable which includes an electrical superconductor immersed in liquid coolant. The cable includes inner and outer tubular conduits with the inner conduit enclosing the electrical superconductor and the liquid coolant. At least two support elements are positioned between the conduits to provide support for the adjacent region of the inner conduit to maintain it in spaced coaxial relation within the outer conduit. Each support element includes a slender arch-shaped member having axially spaced first and second ends and an apex intermediate the ends spaced radially therefrom. The ends of each support element are fixedly connected with one of the conduits and a sliding connection is provided between its apex and the other of the conduits. At least one annular strut connects the support elements so that they are braced together.

3,758,702
INSULATED BUS-BAR ASSEMBLY HAVING A BRANCH CONNECTION

Werner Kogler; Werner Kohler, and Aly Abou-Zied, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 18, 1972, Ser. No. 254,737
Claims priority, application Germany, May 21, 1971, P 21 26 094.6
Int. Cl. H02g 5/00
U.S. Cl. 174—71 B 12 Claims

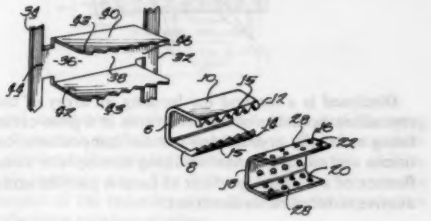


An insulated bus-bar for high-voltage switching installations is equipped with a conductor member of rectangular cross-section having wide and narrow sides. The conductor member is enclosed by a layer of insulating material in which is formed a recess down to the conductor member at a wide side thereof. A branch conductor extends into the recess and presses tightly against the conductor member.

3,758,703
WIRE CONNECTOR

James E. Golden, Evanston, and James F. Taylor, Chicago, both of Ill., assignors to Reliable Electric Company, Franklin Park, Ill.

Filed Aug. 16, 1972, Ser. No. 281,229
Int. Cl. H02g 15/08
U.S. Cl. 174—84 C 7 Claims

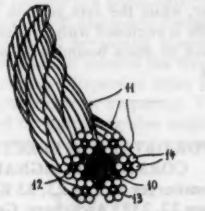


An electrical connector for splicing insulated wires comprises a U-shaped dead soft outer shell and a U-shaped resilient insert or inner shell with inwardly projecting, insulation-piercing prongs. An outer insulated tape is disposed over the base and opposed sides of the outer shell and has portions extending beyond those opposed sides and terminating in serrated edges. The outer shell has opposed end flanges on the opposed sides that project toward each other and are serrated. The free edges of the sides of the insert terminate short of the serrated edges of the opposed flanges. When the connector is crimped over the wires, the prongs pierce the insulation thereon and the serrated edges of the in-folded tape portion provide clearance for some of the prongs. The serrated flange edges permit a wire, such as a crossover wire, to fall between the teeth of the serrations or the teeth may pierce the insulation.

3,758,704
HOISTING ROPE

John Raymond Naud, Pierrefonds, Quebec, Canada, assignor to Wire Rope Industries of Canada Ltd., Lachine, Quebec, Canada

Filed Mar. 22, 1972, Ser. No. 237,072
Claims priority, application Canada, Jan. 31, 1972, 133600
Int. Cl. H01b 5/08, 7/22
U.S. Cl. 174—102 E 8 Claims



A hoisting rope is provided which has a core surrounded by strands having an insulated electrical conductor in their middle. The core can be a fibre core or a reinforcing steel core or any other type of core which may be found desirable. The resulting rope has a longer life and an improved overall performance.

3,758,705

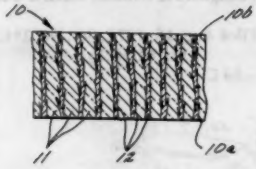
COAXIALLY CONDUCTING ELEMENT AND PROCESS FOR MANUFACTURE

Anthony P. Schmid, Riga, Mich., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Sept. 14, 1972, Ser. No. 289,193

Int. Cl. H01b 7/00

U.S. Cl. 174—113 R **13 Claims**



Disclosed is a method for forming an array of conductive crystalline dendrites of reduced rutile in a glass-ceramic insulating matrix by crystallizing certain compositions containing titania and silica in a non-oxidizing atmosphere under the influence of a thermal gradient to form a parallel array of conductive reduced rutile dendrites.

3,758,706

INSULATED COILS FOR ELECTRICAL MACHINES

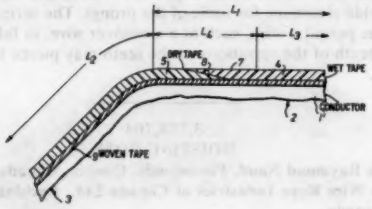
Edmar Strauss; Siegfried Foth, and Hans-Jurgen Kaltschmidt, all of Berlin, Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Apr. 3, 1972, Ser. No. 240,639

Claims priority, application Germany, Apr. 3, 1971, P 21 17 016.1

Int. Cl. H01b 7/02

U.S. Cl. 174—120 SR **8 Claims**



An insulated conductor or conductor bundle for electrical machines wherein the portion of the conductor or conductor bundle which is to be installed in the grooves of a lamination packet of the machine, is enclosed with an insulation material containing mica which is bound with a high percentage by weight of binder, while the arm portion of the conductor or conductor bundle is enclosed with an insulation material containing only mica or mica bound with a low percentage by weight of binder.

3,758,707

METHOD FOR OBTAINING ELECTRONIC COLOR CORRECTION SIGNALS

Hans Keller, Flensburger Strasse 23, 23 Kiel, and Hans-Georg Knop, Am Horn 22, 2323 Ascheberg, Germany

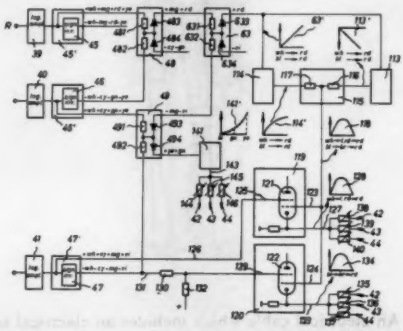
Continuation-in-part of Ser. No. 847,970, Aug. 6, 1969, abandoned. This application Dec. 27, 1971, Ser. No. 212,182

Claims priority, application Germany, Aug. 8, 1968, P 17 97 049.9

Int. Cl. H04n 1/46

U.S. Cl. 178—5.2 A **14 Claims**

A method for obtaining electronic color correction signals in which the differences with respect to compensative masking (elimination of the gray tones) are formed between the amplitudes of the logarithmic or trichromatic color measurement signals non-linearly transformed. These difference signals are split by selection according to their sign into primary partial signals from each two of which a further signal may be formed and divided into secondary partial signals according to actual sign. An emphasis of primary and/or secondary partial signals is provided wherein the signals are emphasized more strongly in definite areas of the color space than in other color areas of the region of the color space encompassed by the partial signals. Relative emphasis is effected only over a relatively limited area within the color scale extending from a neutral (non-chomatic) color to a saturated chromatic color selectively by transforming the partial signals in accordance with a non-linear function. The same partial signal may be transformed in accordance with two different functions, for example, a logarithmic and a negative linear function, and the difference signal is formed from the two resulting transformation signals. The signals are then employed to control color amplifying channels in the color correction process.



3,758,708

COLOR TELEVISION SYSTEM FOR CONVERTING SEQUENTIAL COLOR TELEVISION SIGNALS INTO SIMULTANEOUS COLOR TELEVISION SIGNALS

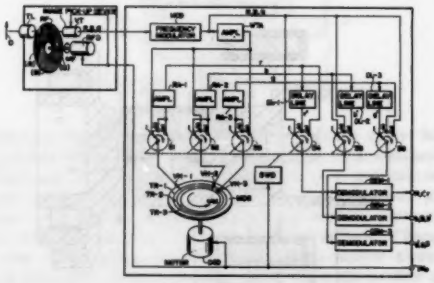
Yasufumi Yumde, Saitama-ken; Akiyoshi Iyama, Sagamihara; Toshi Ito, Tokyo, and Toshihiko Nakajima, Hino, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 30, 1971, Ser. No. 129,535

Claims priority, application Japan, Mar. 31, 1970, 45/27285

Int. Cl. H04n 9/42

U.S. Cl. 178—5.4 C **14 Claims**



A color television system for converting sequential color television signals produced by a color television camera into simultaneous color television signals is disclosed, in which the scene is televized sequentially in red, green and blue colors

one color per field after another to produce sequential color signals respectively responsible for red, green and blue colors, the produced color signals being successively recorded in a recorder. One of the red, green and blue color signals is taken out directly from the camera, while the two remaining color signals are simultaneously taken out of the recorder so as to provide three simultaneous color television signals.

3,758,709

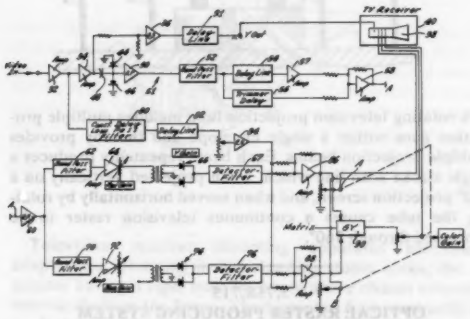
SINGLE TUBE COLOR CAMERA WITH CROSSED GRID GRATINGS WITH ADJACENT LINE SIGNAL AVERAGING TO ELIMINATE VERTICAL SCENE MODULATION

Alfred M. Nelson, Redondo Beach, Calif., assignor to The Magnavox Company, Torrance, Calif.

Division of Ser. No. 831,029, June 6, 1969, Pat. No. 3,647,943. Filed June 8, 1970, Ser. No. 44,411

Int. Cl. H04n 9/06

U.S. Cl. 178—5.4 ST **7 Claims**



This invention relates to a system for, and method of, reproducing a color image from a composite black-and-white image. The composite black-and-white image is formed either on an exposure or is formed from a live image. In either case, modulations are provided in a first particular line pattern to obtain a representation of a first particular color. Modulations are also provided in a second particular line pattern different from the first particular line pattern to obtain a representation of a second particular color. The third color may be unmodulated. The three colors add optically to form the image luminance.

To reproduce the color image, signals are provided by scanning the composite image. Means are provided for operating upon such signals in accordance with the modulations in the first particular line pattern to produce signals representating the first particular color. Means are also provided for operating upon the signals representing the composite image in accordance with the modulations in the second particular line pattern to produce signals representing the second particular color. The signals representing the first and second particular colors are those used in conjunction with the luminance to reproduce the color image.

3,758,710

TIME BASE ERROR CORRECTION SYSTEM, INCLUDING CONVERTER, FOR VIDEO REPRODUCER AND/OR RECORDER

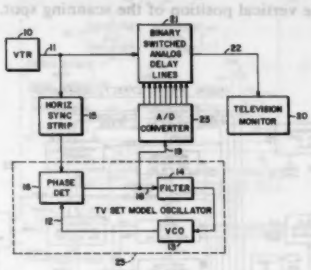
Philip M. Crosno, Saratoga, Calif., assignor to Cartridge Television, Inc., San Jose, Calif.

Filed Mar. 9, 1972, Ser. No. 233,064

Int. Cl. H04n 1/22, 5/78

U.S. Cl. 178—6.6 TC **3 Claims**

Disclosed herein is a system for compensating for time base errors existing in helical scan video recorders. On playback horizontal synchronizing signals are stripped from the composite video output of the recorder-reproducer and the stripped horizontal sync signals are applied to the phase detector element of a phase lock loop. To another input of the phase lock loop is applied the synchronizing signal of a simulated television receiver horizontal scanning system. The resultant control signal is filtered and utilized to control the



horizontal oscillator in the simulated horizontal scanning system. It is also applied to an analog to digital converter which converts the analog voltage into variable delays, preferably in binary steps. The delays are inserted between the video output of the recorder-reproducer and the input of an actual television receiver monitor.

3,758,711

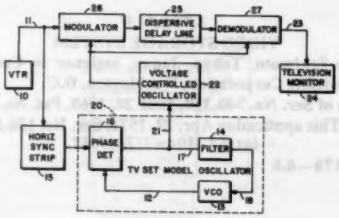
TIME BASE ERROR CORRECTION SYSTEM INCLUDING ELECTRONICALLY VARIABLE DELAY LINE FOR VIDEO REPRODUCER AND/OR RECORDER

Philip M. Crosno, Saratoga, Calif., assignor to Cartridge Television, Inc., San Jose, Calif.

Filed Mar. 9, 1972, Ser. No. 233,062

Int. Cl. H04n 1/22, 5/78

U.S. Cl. 178—6.6 TC **3 Claims**



Disclosed herein is a system for compensating for time base errors existing in helical scan video recorders. On playback stripped horizontal synchronizing signals and the synchronizing signal of a simulated television receiver horizontal scanning system are applied to a phase detector. The resultant control signal is filtered and utilized to control the horizontal oscillator in the simulated horizontal scanning system. The control signal is also used to control the frequency changing circuitry of a surface wave dispersive delay line in which the magnitude of delay depends on frequency. The surface wave delay line is inserted between the video output of a recorder-reproducer and the input of a television receiver monitor.

3,758,712

DIGITAL SPECIAL EFFECTS GENERATOR

John P. Hudson, Toronto, Ontario, Canada, assignor to Sarkes Tarzian, Inc., Bloomington, Ind.

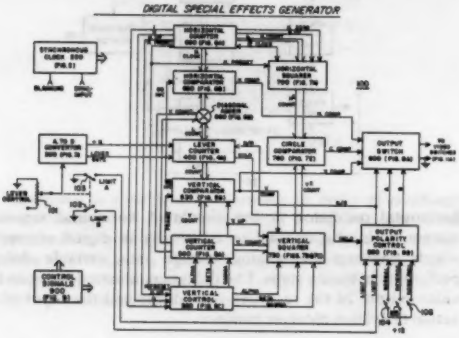
Filed Mar. 27, 1972, Ser. No. 238,077

Int. Cl. H04n 5/22

U.S. Cl. 178—6.8 **8 Claims**

A special effects generator constructed primarily from digital hardware combines two input video signals into a single

output video signal under the control of a single lever control. Horizontal, vertical, and diagonal wipes may be achieved, as well as exploding circular and elliptical wipes and many other highly unusual effects. The generator includes a horizontal digital counter the count output of which indicates the horizontal position of a scanning spot in the output video signal and a vertical digital counter the output of which indicates the vertical position of the scanning spot. An analog-



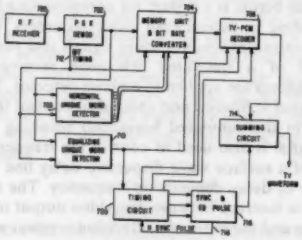
to-digital converter presents a count proportional to the setting of the lever control. Digital computational circuitry including squaring circuitry is provided for processing these digital counts in various ways, and the resultant computed digital outputs are compared by one or more digital comparing circuits or comparators. The comparing circuit outputs then serve as a criterion for determining which of two input video signals is to be used in constructing the output video signal at any given moment.

3,758,713

VIDEO STORAGE SYSTEM

Tadahiro Sekimoto, Tokyo, Japan, assignor to Communications Satellite Corporation, Washington, D.C.

Division of Ser. No. 740,310, June 26, 1968, Pat. No. 3,666,888. This application Apr. 22, 1971, Ser. No. 136,581
Int. Cl. H04n *5/76, 7/12*
U.S. Cl. 178—6.8 **7 Claims**



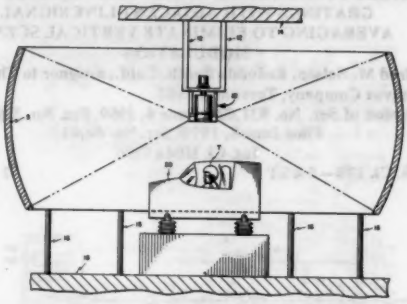
A receiver for receiving non-redundant pulse coded lines of a TV waveform. The non-redundant lines are received along with address information identifying the position of the respective lines in a TV frame. The address information controls the writing of the pulse coded lines into a frame memory. The entire contents of the frame memory is read out at the normal frame rate and converted into analog video information.

3,758,714

MULTIPLE GUN ROTATABLE TELEVISION PROJECTOR HEAD FOR 360 DEGREE DISPLAY

John W. Herndon, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 11, 1972, Ser. No. 270,756
Int. Cl. H04n *3/28*
U.S. Cl. 178—7.5 D **7 Claims**



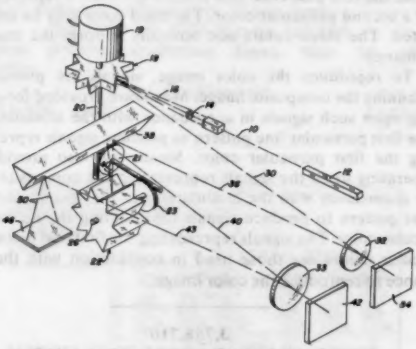
A rotating television projection tube includes multiple projection guns within a single envelope and thereby provides multiple projection beams. Each beam repeatedly produces a single stroke scan line which, when projected vertically on a 360° projection screen, and when moved horizontally by rotating the tube causes a continuous television raster to be generated through 360°.

3,758,715

OPTICAL RASTER PRODUCING SYSTEM

Willard E. Buck, Los Gatos, and Thomas E. Holland, Sunnyvale, both of Calif., assignors to Technical Operations, Incorporated, Burlington, Mass.

Continuation of Ser. No. 574,640, Aug. 24, 1966. This application June 16, 1969, Ser. No. 835,902
Int. Cl. H04n *3/08*
U.S. Cl. 178—7.6 **4 Claims**



This disclosure depicts laser beam scanning apparatus capable of producing a two-dimensional raster-type scan. A stationary input laser beam is brought to a focus in the locus of travel of a train of corner mirrors arranged convergent in the direction of the input beam and mounted for high speed rotation upon the periphery of a driven wheel. The effect of moving the corner mirror train through the beam focus is to produce an image of the beam focus which is displaced substantially rectilineraly a distance equal to twice the displace-

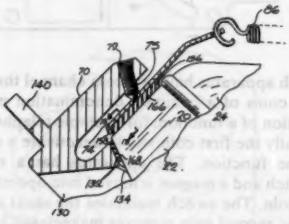
ment of the mirror train. A lens system images the beam focus image in the locus of travel of an orthogonally driven second train of corner mirrors to produce raster. A projection lens collects light from the raster producing a real raster image for use in display, interrogation, and the like.

3,758,716

TELEVISION RECEIVER MOUNTING APPARATUS

Donald N. James, and Peter A. Nightingale, both of Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Colo.

Continuation of Ser. No. 780,500, Dec. 2, 1968, abandoned.
This application Aug. 2, 1971, Ser. No. 168,377
Int. Cl. H04n 5/645
U.S. Cl. 178—7.8 6 Claims



Television receiver mounting apparatus particularly adapted for mounting in broadcasting studio racks, the apparatus having a rigid metallic frame and a chassis extending rearwardly from the frame. The frame has four rearwardly extending protrusions between which the enlarged end of the kinescope is received at an opening in the frame in proper position for viewing. Cushioned brackets are secured between the frame protrusions and the kinescope to frictionally restrain the kinescope from movement and to maintain it in a fixed horizontal and vertical position. A second opening horizontally spaced from the first opening receives both externally mounted controls and readily accessible internally mounted controls - the latter being accessible by means of a movable circuit card slidable along a guide forwardly from the front of the receiver without disruption of normal receiver operation. The circuit card may also be disconnected and removed from the receiver through the second opening.

ERRATUM

For Class 178—6.800 see:
Patent No. 3,758,723

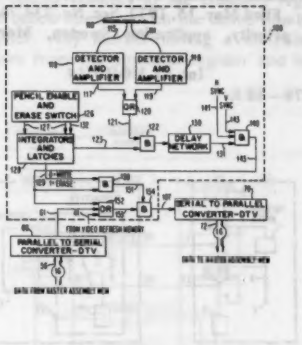
3,758,717

FREE HAND DRAWING DISPLAY SYSTEM UTILIZING LIGHT PEN TO WRITE AND ERASE INFORMATION

Angelo N. Granzotti, Washington, D.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 28, 1970, Ser. No. 41,405
Int. Cl. H04n 7/18
U.S. Cl. 178—6.8 5 Claims

A display system including a light pen adapted to write or erase either a narrow or a wide path on a CRT display device, allows an operator to draw or erase with a free hand motion by inverting the polarity of the displayed image so that non-information raster areas are bright spots and information areas are dark spots on the face of the display screen. More specifically, an image inverter is added between the image refresh memory device and the display device to free the operator from restraint due to the inherent ability of a light sensitive device to only operate on bright spots on a display screen.

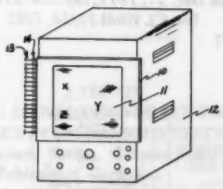


3,758,718

TRANSPARENT SWITCHBOARD

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by, and Hans P. Rasmussen, Lierbyen, Norway

Filed Feb. 15, 1972, Ser. No. 226,476
Int. Cl. G08c 21/00
U.S. Cl. 178—18 13 Claims

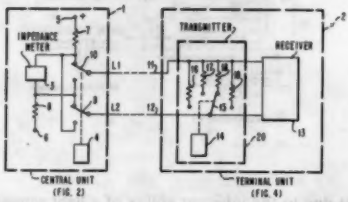


A tin oxide coating is formed on a plate of glass and the coating is then etched away from the glass in thin lines to form separate electrical conductors which extend to one end of the plate and connect to either a vertical (column) or horizontal (row) position sensing SCR circuit. A thin transparent insulating coating is formed over the oxide layer except at selected touch points which are positioned in a matrix pattern of vertical columns and horizontal rows. Touching one of these points with a finger bridges the thin line between adjacent conductors to activate trigger circuits in the particular row and column sensing circuits associated with the point touched. The row and column sensing circuits are similar and are powered with a low frequency, AC voltage source. The source for the row circuits is 180° out of phase with the source for the column circuits so that one circuit acts as ground for the other during half of the supply voltage cycle. The signals from the sensing circuits are input to a logic circuit which determines the presence of a "valid" touch (indicated by outputs of predetermined duration from only a single column circuit and a single row circuit), stores a binary matrix number associated with the touched point, signals a computer of the presence of a stored number and prevents storage of a new number before receiving an enable signal from the computer.

3,758,719
METHOD AND DEVICE FOR TWO-WAY TRANSMISSION BY MEANS OF TWO-WIRE TRANSMISSION CHANNEL

Ulrich Konrad Wilhelm Klose, Lidingo, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 15, 1972, Ser. No. 234,763
Claims priority, application Sweden, Mar. 23, 1971, 3784/71
Int. Cl. H04l 5/14
U.S. Cl. 178—58 R 9 Claims

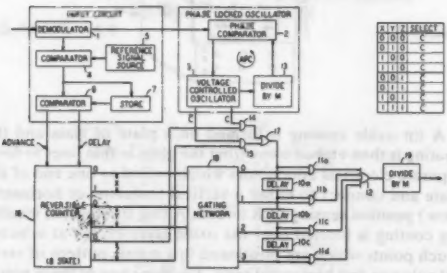


Simultaneous two-way communications over a single channel are provided by controlled time modulated polarity changes and simultaneous resistance measurements.

3,758,720
CIRCUIT FOR INCREMENTALLY PHASING DIGITAL SIGNALS

Neil Francis Dinn, Tewksbury, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 27, 1971, Ser. No. 211,880
Int. Cl. H04l 27/24, 7/02
U.S. Cl. 178—67 9 Claims

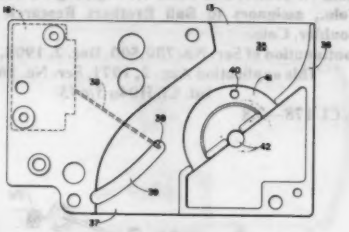


A phasing circuit for a digital system requiring the relative phasing of two synchronous, periodic digital signals wherein the repetition rate of a generated synchronous reference signal is increased to enable the output and complementary output of this generator, and the phasing networks, to be repeatedly "recycled." The output of the phasing circuit is subsequently divided down in frequency to provide the properly phased periodic digital signal at the desired lower repetition rate. Since the phasing networks are thus "recycled," appreciable savings are obtained over the prior art structures which required individual networks for each incremental step of the desired phasing accuracy.

3,758,721
COIN SWITCH APPARATUS

Henry Allan Main, London, Ontario, Canada, assignor to Bell Canada-Northern Electric Research Limited, Ottawa, Ontario, Canada

Filed May 23, 1972, Ser. No. 256,111
Int. Cl. H04m 17/02
U.S. Cl. 179—6.5 8 Claims

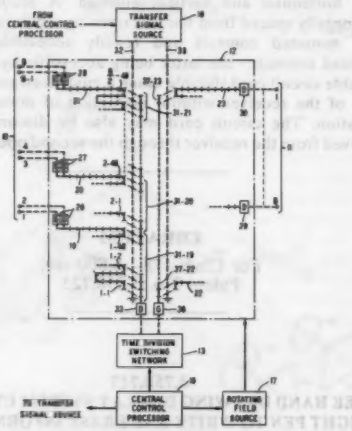


Coin switch apparatus having a coin channel through which at least two coins of a common denomination must pass to permit initiation of a function, for example telephone dialling, where normally the first coin would deactivate a short circuit to permit the function. The apparatus has a magnetically operated switch and a magnet is moved into operative position by the first coin. The switch maintains the short circuit when operated. The second coin removes magnet and switch opens to permit function.

3,758,722
NETWORK FOR TRANSPOSING SIGNAL BIT INTERLEAVING PATTERNS

Peter Istvan Bonyhard, Edison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 22, 1972, Ser. No. 227,758
Int. Cl. H03k 19/40
U.S. Cl. 179—15 A 14 Claims



Time division multiplex signals arranged in transmission time frames of multibit time slot signals are entered into a first set of plural shift registers arranged to present at predetermined signal transfer points the predetermined signal bits of corresponding bit positions in each time slot of a frame. The predetermined signal bits comprise a miniframe in which each time slot includes only a part of the bits from a time slot in a complete transmission frame. At the end of a transmission time frame, the miniframe signals are transferred to a second

set of plural shift registers. The sets of registers are configured for transposing time division signals in either direction between the transmission frame format and the miniframe format depending upon the manner of operation of the transfer between the sets of registers.

The shift registers are implemented in magnetic single wall domain technology.

Arrangements for either bit-series or bit-parallel interface with other signal paths are considered.

3,758,723

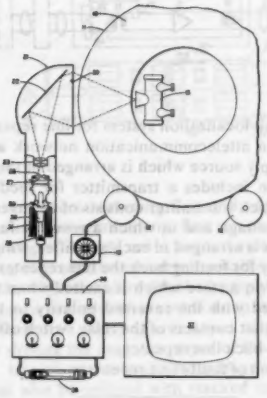
X-RAY INSPECTION SYSTEM

Donald T. Green, Shaker Heights, and James L. Snarr, Cleveland Heights, both of Ohio, assignors to Imagex, Inc., Mantor, Ohio

Filed Jan. 18, 1972, Ser. No. 218,724

Int. Cl. G01n *23/18*; **H01j** *37/20*; **H04n** *7/18*

U.S. Cl. 178—6.8 **10 Claims**



An X-ray inspection system includes placement of an article to be inspected in a stationary position between an X-ray source and a fluorescent screen, focusing the X-ray shadow picture produced on the fluorescent screen on the target of a television camera tube capable of integrating, preferably through a light intensifier, for a sufficient time to produce an intense electrostatic image, transferring the image to a storage device by snatching a single frame, and displaying the image in the storage device continuously on the picture tube of a monitor while moving the article for inspection of a different area and while producing a new electrostatic image on the target of the camera tube.

3,758,724

BUSY LINE CONTROL FOR SWITCHING SYSTEM

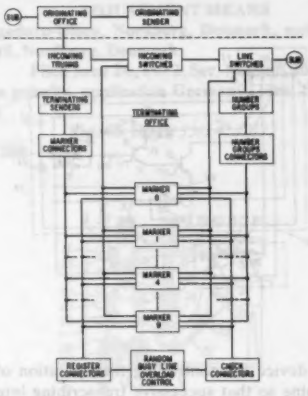
Frank H. Anderson, Orchard Park; Louis J. Cerny, Long Island City, both of N.Y.; James J. Murphy, Teaneck, and John C. Sieglinger, Short Hills, both of N.J., assignors to American Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,616

Int. Cl. H04m *3/22*

U.S. Cl. 179—18 AB **16 Claims**

A crossbar telephone switching system wherein one of a number of markers, under the control of a called directory number registered therein, seizes a number group circuit and causes the number group circuit to translate the called number into the equipment location of the called line, the nature (class) of the called line, and the busy-idle condition of the called line. If the called line is found to be busy at a time when all markers are busy, the marker connects to a common register, registers therein the busy called number, releases from the common register, and initiates the usual busy-back switching function. All other markers having then registered therein called numbers requiring number group translation and busy-idle testing connect to the common register and compare their called numbers with the called number in the common register. Any marker having a matching called number releases from the common register and initiates a busy-back switching function without seizing a number group circuit for translation and without performing line testing. Any marker not having a matching number releases from the common register and seizes a number group circuit in the normal manner. After a suitable time delay to allow all markers to finish the comparison of called numbers, the common register clears itself of the called number registered therein and renders itself available for another such use.



3,758,725

SWITCHING SIGNAL CONVERTER FOR A TIME MULTIPLEX PCM TRANSMISSION SYSTEM

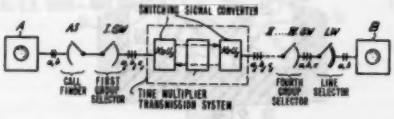
Wolf-Henning Harms, Berlin, Germany, assignor to Krone GmbH, Berlin-Zehlendorf, Germany

Filed Apr. 20, 1971, Ser. No. 135,605

Claims priority, application Germany, Apr. 20, 1970, P 20 18 931.5

Int. Cl. H04j *3/12*

U.S. Cl. 179—15 BY **9 Claims**



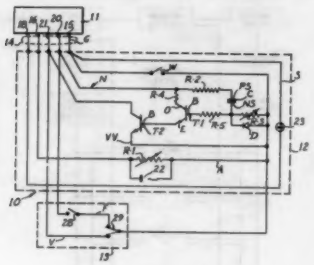
A telecommunications circuit for a telephone exchange installation for the conversion of switching signals which occur on more than two connecting wires with more than two states. The circuit includes separate logic elements arranged to advantageously utilize the laws of a particular switching plan such that less bits are required for marking code words than would be theoretically required on the basis of the number of different switching markers.

3,758,726

ELECTRIC CONDITION CONTROL DEVICE FOR A TRANSCRIBING MACHINE

Fred C. Bolick, Jr., and James B. Godwin, III, both of Atlanta, Ga., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Division of Ser. No. 854,428, Sept. 2, 1969, Pat. No. 3,632,893. This application Aug. 30, 1971, Ser. No. 176,310
Int. Cl. G11b *15/20*
U.S. Cl. 174—100.1 R 6 Claims



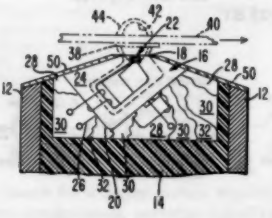
A control device for controlling the operation of a transcribing machine so that successive transcribing intervals are overlapped by a predetermined amount to facilitate transcription. A circuit is provided for automatically causing the dictation recording medium to move a predetermined amount in a transcribing reverse direction in response to termination of recording medium movement in a transcribing forward direction. The automatic transcribing reverse movement is controlled by a capacitor charging current which occurs when the recording medium stops moving in a transcribing forward direction. The amount of overlap of successive transcribing intervals is proportional to the duration of the capacitor charging current.

3,758,727

MULTIPLE TRANSDUCER MAGNETIC HEAD

Karlis Kruklitis, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Continuation of Ser. No. 833,909, June 17, 1969, abandoned. This application Oct. 22, 1971, Ser. No. 191,897
Int. Cl. G11b *5/16, 5/28*
U.S. Cl. 179—100.2 C 3 Claims



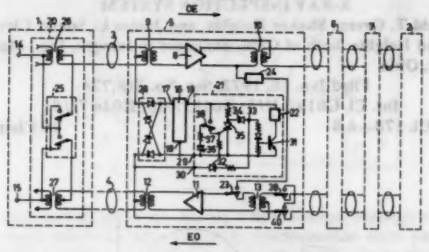
A magnetic reproducing head having a plurality of electromagnetic transducers spaced within the magnetic influence of one another. Magnetic shields are interposed in the space between each transducer to eliminate the cross-coupling of magnetic lines of flux between adjacent transducers within the body of the magnetic head. An eddy current generating member is mounted to eliminate the cross-coupling of magnetic lines of flux externally to the face of the magnetic head.

3,758,728

REPEATER FAULT LOCALIZATION SYSTEM

Emile Francois Louis Le Roch, Velizy, and Robert Troncy, Antony, both of France, assignors to Telecommunications Radioelectriques et Telephoniques T. R. T., Paris, France

Filed June 22, 1972, Ser. No. 265,331
Claims priority, application France, June 24, 1971, 7122982
Int. Cl. H04b *3/46*
U.S. Cl. 179—175.31 R 6 Claims



A repeater fault localization system for line repeaters which are distributed in attelecommunication network and are fed by a remote supply source which is arranged in the initial station. This station includes a transmitter for feedback command signals, which transmitter consists of an inverter for the remote supply voltage and in which a receiver for feedback command signals is arranged in each amplifier, which receiver consists of a relay for feeding back the line repeaters, the relay being connected to a store which is excited when the voltage pulses are applied with the reversed polarity to the line repeaters in order that contacts of the relay switch off the supply line behind a fed-back line repeater.

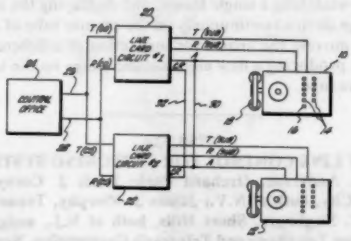
Use: localization of faulty line repeaters.

3,758,729

LINE CARD CIRCUIT FOR DUAL STATION CONTROL

Charles T. Everhart, Santa Ana, Calif., assignor to San/Bar Electronics Corp., Santa Ana, Calif.

Filed Dec. 6, 1971, Ser. No. 205,099
Int. Cl. H04m *3/22*
U.S. Cl. 179—99 25 Claims



A line card circuit for a telephone system that operates to permit each of a pair of physically distant subscriber stations to exercise full control over a telephone circuit, is disclosed. The telephone system would include a pair of subscriber stations each having a key telephone unit that is equipped to have a corresponding line card circuit. The line card circuits are both connected to a central office via the telephone circuit formed by a single pair of conventional line conductors. The line card circuits are further interconnected for dual station

control and include circuitry that is responsive to ringing signals for enabling simultaneous ringing at both telephone stations. Further included in each line card circuit is circuitry to permit both subscriber stations to exercise full supervisory control over the telephone circuit, for example, by placing or answering calls at either subscriber station and placing the line conductors in a hold condition or removing the conductors from such hold condition. Also included is circuitry which provides for the simultaneous display of visual indicators at both subscriber stations.

3,758,730

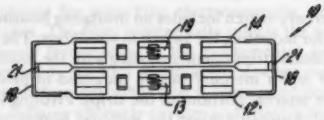
MULTI-CHANNEL CASSETTE SYSTEM FOR SOUND RECORDING AND REPRODUCTION WITH INTERLOCKED STACKED CASSETTES

Kenneth J. Rothschild, 44 Hooker St., Allston, Mass., and Leigh M. Rothschild, 764 Mahooney Hall, Coral Gables, Fla.

Filed Mar. 15, 1972, Ser. No. 234,841

Int. Cl. G11b *23/04*

U.S. Cl. 179—100.2 Z **4 Claims**



A cassette system including first and second cassettes arranged in a stacked relationship, first removable means for interlocking aligned supply reels, second removable means for interlocking aligned take-up reels, rotatable spindle means for receiving the aligned and interlocked supply reels and take-up reels, magnetic transducer means for reproducing or recording information on the magnetic tapes of the cassettes, and means for driving the magnetic tapes of the cassettes past the magnetic transducer means. Advantageously, the spindle means may also be utilized with stacked cassettes which are not interlocked.

3,758,731

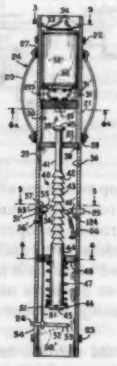
SWITCH MEANS FOR ACTUATING DOWNHOLE DEVICES

Roy R. Vann, and Clyde R. Vann, both of 3302 Providence Dr., Midland, Tex.

Filed Feb. 19, 1971, Ser. No. 116,948

Int. Cl. H01b *3/16*; E21b *43/11*

U.S. Cl. 200—61.69 **12 Claims**



A switch means for electrically actuating a downhole device wherein the switch means and downhole device are connected into a tool string and run into the borehole on a slick line to provide a source of electrical power at any given time. The switch means is actuated by positively reciprocating the slick line to which the tool string is attached a predetermined number of times. Provision is made for resetting the apparatus at any time prior to closure of the switch means.

3,758,732

FLUID PRESSURE ACTUATED SNAP-ACTION SWITCH WITH DIFFERENTIAL AND RANGE SPRING ADJUSTMENT MEANS

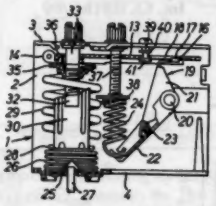
Jens Hagedorn-Olsen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed June 26, 1972, Ser. No. 266,066

Claims priority, application Germany, June 26, 1971, P 21 31 858.1

Int. Cl. H01h *35/24*, *35/32*

U.S. Cl. 200—81 R **6 Claims**



The invention relates to a snap action switch assembly comprising a snap action system which incorporates a main arm which is movable between two stops and to which the force of a pressurized working element and of an adjustable range defining spring is applied. A snap action arm is linked with said main arm and hinged in a bearing at its other end. This bearing is spring urged towards the snap action arm and the spring force thereof is likewise adjustable. The switch also comprising a contact system in which a movable contact is spring biased against a fixed contact and can be lifted by a drive element associated with the main arm.

3,758,733

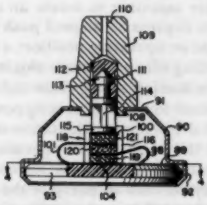
PRESSURE SENSITIVE STEPPING SWITCHES WITH MULTI LAYER SPRING CONTACT ASSEMBLY WITH INTERPOSED LAYERS OF LUBRICATED NON-CONDUCTIVE ELASTOMERIC MATERIAL AND CONDUCTIVE PARTICLES THEREIN

Gideon A. DuRocher, and Daniel J. DuRocher, both of Mt. Clemens, Mich., assignors to Essex International, Inc., Fort Wayne, Ind.

Filed Oct. 4, 1971, Ser. No. 185,957

Int. Cl. H01h *35/38*

U.S. Cl. 200—82 R **19 Claims**



A pressure sensitive stepping switch comprises a stack of resiliently compressible, normally non-conductive elastomeric pads throughout each of which a quantity of electrically con-

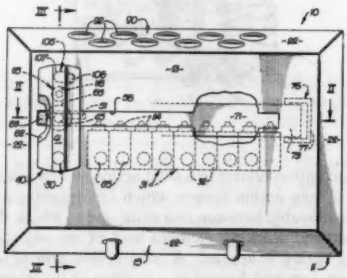
ductive particles are dispersed. Straddling each pad is a pair of conductors for connection to a source of electrical potential and to an electrical device to be operated. The pads are rendered electrically conductive in response to compression of the stack, the compressive force required to render each pad conductive being different so as to enable the pads to be rendered conductive in a predetermined sequence. Oil applied to the surface of the pad greatly increases its life.

3,758,734

SEQUENTIAL SWITCH MEANS WITH A LINEARLY MOVABLE AND ROTATABLE ACTUATOR MEANS

Klaus W. Gartner, 5711 Ravenspur Dr., Palos Verdes Peninsula, Calif.

Filed May 24, 1971, Ser. No. 146,132
Int. Cl. H01h *9/00*
U.S. Cl. 200—5 R **3 Claims**



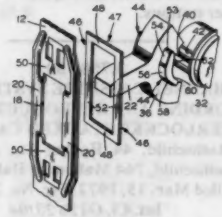
The sequential signal producing means has a housing including a back wall mounting a row of a desired number of individual push button switches, and including a mating, open backed cover with a front longitudinal slot, and with a like number of upper windows; a slider assembly of a knob plate with a rectangular sleeve extending through the slot and secured to an inner plate to be thereby slideably mounted to the housing for movement along the slot; a strip spring coiled at one end, anchored to the housing at the one end, secured to the sleeve of the slider assembly mid-way thereof, and extended along the slot to be collected in a tube adjacent the other end of the slot to bias the slider assembly toward the one end to a ready position, a spring ball in the inner plate for dropping into one of a like number of indentations in the housing to precisely locate the slider assembly in a respective distinct position along the slot; an arm on the inner plate for blocking the window corresponding to the distinct position of the slider assembly; a knob with a shaft extending through the sleeve of the slider assembly to locate an eccentric over the row of switches to depress an aligned push button upon rotation of the knob to an operating position; a shoulder from the inner plate extending into an arcuate slot in the knob to limit rotation thereof; a torsion spring from the shaft to the inner plate to bias the knob to a non-operating position; a spring ball in the knob which drops into an identation in the knob plate to temporarily hold the knob in non-operating position, and a switch on the housing operated by movement of the knob away from a ready position to energize the switches whereby when the knob is located in a respective distinct position and is rotated, a respective switch is operated, upon a patterned movement between distinct positions and upon rotation in these positions, to produce a sequential signal for being sent to a means for discriminately receiving a sequential signal.

3,758,735

TOGGLE MECHANISM FOR MERCURY SWITCH

Walter C. Schumacher, Warwick, R.I., assignor to General Electric Company, Providence, R.I.

Filed Apr. 28, 1972, Ser. No. 248,456
Int. Cl. H01h *29/20*
U.S. Cl. 200—222 **4 Claims**



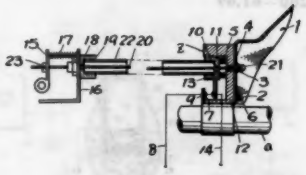
A mercury switch includes an insulating housing attached to a strap for mounting the switch in a wall box. The housing contains contact strips communicating with the insulating housing exterior and a mercury button mounted in pivoting relation between internal portions of the strips. Pivoting is actuated by a toggle mounted against the mercury button and having an externally extending trigger for control of the button pivot position from the switch exterior. Trigger movement is made smooth by an improved toggle mechanism including a longitudinal spring bearing at its ends against the underside of the strap and at its mid-portion against turnions of the toggle. The longitudinal spring also compensates for small dimensional differences of elements of the switch and provides lateral stability to the trigger.

3,758,736

EMERGENCY STOP SWITCH MEANS FOR A SNOWMOBILE OR THE LIKE

Yoshiyuki Tanaka, Lot 9, 14-Ban, 1-chome, Sakasegawa, Takarazuka-shi, Hyogo Prefecture, Japan

Filed Mar. 22, 1972, Ser. No. 236,808
Claims priority, application Japan, Apr. 10, 1971, 46/22673
Int. Cl. H01h *17/20*
U.S. Cl. 200—157 **4 Claims**



In an emergency stop switch means for a snowmobile on the like a throttle lever is rotatably mounted on a handle through a bracket thereby controlling an operating lever of carburetor. These levers are connected with each other by an inner wire in an outer sheath the end of which is held in fixed relation while the other is adapted to permit a moving element to slidably move until a contacting element thereof abuts against a counter-element.

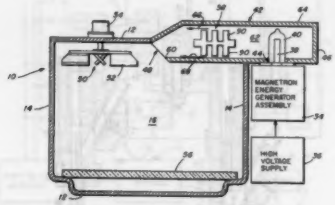
In an emergency, the throttle lever is released so that a spring compressed between the bracket and the moving element recovers its pressure force and contacts said contacting elements with each other whereby an electric ignition circuit is earthed to stop rotation of a snowmobile engine.

3,758,737

WAVEGUIDE FILTER FOR MICROWAVE HEATING APPARATUS

Richard Ironfield, Williamsburg, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa

Filed June 13, 1972, Ser. No. 262,396
Int. Cl. H05b 9/06; H01p 7/20
U.S. Cl. 219—10.55 11 Claims



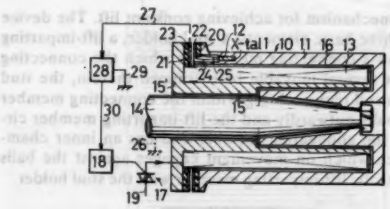
A low pass filter is provided for rectangular waveguide of the type employed for launching electromagnetic energy in microwave ovens. The filter substantially rejects the transmission of harmonic frequencies of the fundamental generator operating frequency as well as adjacent energy oscillation modes. The structure described has a corrugated configuration with ribs defining alternate cavities and constrictions have cutoff frequency characteristics. Uniform and nonuniform spacing as well as dissimilar sections are discussed. The structure is electrically isolated from the broad waveguide walls to define two propagation paths for the electromagnetic energy. Lightweight conductive materials are suggested. The interrelationships of the alternating rib members provide a series of open and short circuit admittances which are analyzed to determine the desired electrical cutoff frequencies. Identical rib structure is defined on opposing sides of a reference plane extending along the longitudinal axis of the waveguide. Transforming means are utilized for impedance matching.

3,758,738

TEMPERATURE MEASURING APPARATUS FOR HEATING ROLLER

Sigeru Otani; Fuminori Honda, both of Mihara, and Kiyoto Mitani, Fukuyama, all of Japan, assignors to Teijin Limited, Osaka-shi, Osaka, Japan

Filed July 6, 1972, Ser. No. 269,463
Claims priority, application Japan, Oct. 6, 1971, 46/091896 (utility model)
Int. Cl. H05b 5/00
U.S. Cl. 219—10.49 2 Claims



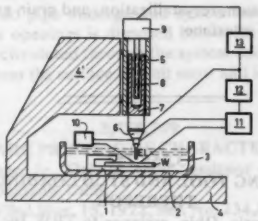
A quartz crystal resonator is embedded in a circumferential wall portion of a heating roller. The heating roller is provided with a rotary electrode, while a stationary electrode is mounted to a stationary portion of the apparatus to form a rotary air capacitor in cooperation with the rotary electrode. The quartz crystal resonator has two terminals, one of which is grounded and the other of which is connected to an oscillation circuit through the air capacitor variation of impedance of the detector to the outside of the heating roller without any mechanical contact with the latter.

3,758,739

APPARATUS FOR REMOVING MATERIAL FROM AN ELECTRICALLY CONDUCTING WORKPIECE

Job Harm De Jongh; Johannes Josephus Aloisius Cornelus Maenhout, and Cornelis Van Osenbruggen, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 295,946
Claims priority, application Netherlands, Oct. 13, 1971, 7114048
Int. Cl. B23p 1/04, 1/14
U.S. Cl. 219—69 G 4 Claims



Spark erosion machine including an electrode holder driven by a motor. A control element in the form of an electromechanical transducer is arranged within the electrode holder, permitting fast fine control of the electrode movement.

3,758,740

APPARATUS FOR SCARFING WELD BEADS

Jerome M. Dupy, 179 Ash St., Woodriver, Ill.

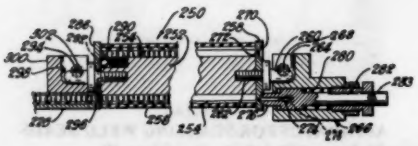
Division of Ser. No. 200,564, Nov. 19, 1971. This application Jan. 2, 1973, Ser. No. 320,182
Int. Cl. B23k 31/06
U.S. Cl. 219—67 2 Claims

A process and apparatus for scarfing a longitudinally extending weld bead on the outside surface of a welded metal tube. The process comprises peaking the tubing so that the major transverse tube axis is from about 5 to 40 percent longer than the minor transverse tube axis, followed by removal of the weld bead substantially flush with the outside surface of the tube. The process and apparatus is particularly applicable to tubing having a wall thickness to diameter ratio of 2½ percent or less and, more particularly, to copper or copper base alloy tubing. The apparatus includes means for peaking the tubing as aforenoted, the preferred means being the use of adjustable side enclosure rolls.

3,758,741
ENHANCED DIFFUSION WELDING
Kenneth H. Holko, Strongsville, and Thomas J. Moore, Berea, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Sept. 14, 1972, Ser. No. 289,033
Int. Cl. B23k 19/00
U.S. Cl. 219—91 10 Claims

Surfaces of unrecrystallized alloys are sanded and polished. This is followed by a two-step welding process wherein the strength of the parent metal is retained at the weld joint. The first step forces the surfaces into intimate contact at a temperature where the metal still has good ductility. The second step causes diffusion, rerystallization, and grain growth across the original weld interface.

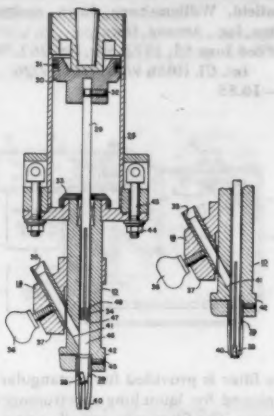
3,758,742
STUD WELDING TOOL AND STUD LOADING DEVICE THEREFOR
Steve Spisak, Elyria, Ohio, assignor to TRW Inc., Cleveland, Ohio
Division of Ser. No. 54,071, June 1, 1970, Pat. No. 3,679,806, which is a division of Ser. No. 358,736, April 10, 1964, Pat. No. 3,525,846. This application Jan. 17, 1972, Ser. No. 218,608
Int. Cl. B23k 9/20
U.S. Cl. 219—98 5 Claims



A loading device for a stud welding tool having chuck means for receiving and holding a stud and a loading passage extending from the loading device to the chuck means. The loading device is a magazine having a plurality of stud-holding passages parallel to and rotatable about an axis parallel to the direction of movement of the chuck between its rearward stud-receiving position and its forward welding position. Compressed air is applied to the rear end of the passage aligned with the loading passage to feed studs one at a time to the chuck means.

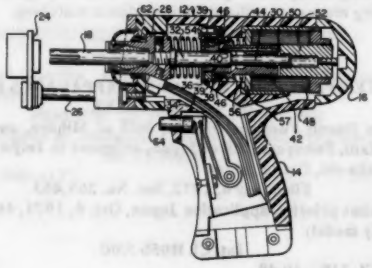
3,758,743
CHUCK ASSEMBLY FOR STUD WELDING APPARATUS
John W. Lake, Audubon, N.J., assignor to Omark Industries, Inc., Portland, Oreg.
Filed June 30, 1970, Ser. No. 51,127
Int. Cl. B23k 9/20
U.S. Cl. 219—98 7 Claims

A chuck assembly for automatically ram feeding large diameter flange studs. A chuck body has a first resilient chuck disposed at one end thereof and a reciprocating second resilient chuck movable through the body from a first loading position past a passageway to which the studs are loaded to the loading chamber to a second welding position concentric within the first chuck. The dimension of the first chuck is such as to retain the flange of the stud and the dimension of the second chuck is such as to pick-up the shank of the stud and support it as the stud is ram fed through the first chuck into



welding position during which the fingers of the first chuck grip the fingers of the second chuck to aid in supporting the stud.

3,758,744
CLUTCH MECHANISM FOR WELDING TOOLS
Steve Spisak, Elyria, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed July 19, 1972, Ser. No. 273,226
Int. Cl. B23k 11/14
U.S. Cl. 219—98 8 Claims

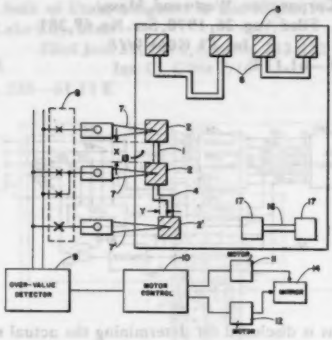


This is a mechanism for achieving constant lift. The device comprises three basic elements: a stud holder, a lift-imparting member, and a connecting member in which the connecting member has several movable balls trapped therein, the stud holder has a rod reciprocating within the connecting member urging the balls outwardly and the lift-imparting member circumscribes the connecting member and has an inner chamfered surface which on movement engages against the balls and connects the lift-imparting member with the stud holder.

3,758,745
SUBSTRATE POSITIONED DETERMINATION STRUCTURE AND METHOD
Paul S. Wilker; William B. Kiss, and Graham A. Neathway, all of Ottawa, Ontario, Canada, assignors to Microsystems International Limited, Montreal, Quebec, Canada
Filed Sept. 7, 1971, Ser. No. 177,997
Int. Cl. B23k 27/00
U.S. Cl. 219—121 LM 9 Claims

A resistive strip adherently deposited on a substrate is progressively cut by a laser beam while the resistance of the

strip is monitored. As the last edge becomes cut, the resistance approaches infinity, and the relative position of the laser beam with respect to the substrate is registered, providing a high



resolution coordinate on the substrate which is useable as a base from which further laser trimming of circuitry deposited on the substrate may be performed.

3,758,746

HAFNIUM ELECTRODE WITH INCLUSION USED IN AN ACTIVE MEDIUM

David Grigorievich Bykhovsky, and Alexandr Yakovlevich Medvedev, both of Leningrad, U.S.S.R.

Filed Dec. 23, 1969, Ser. No. 887,742
Claims priority, application U.S.S.R., Jan. 8, 1969, 1297701
Int. Cl. B23k *35/00*
U.S. Cl. 219—145 **16 Claims**

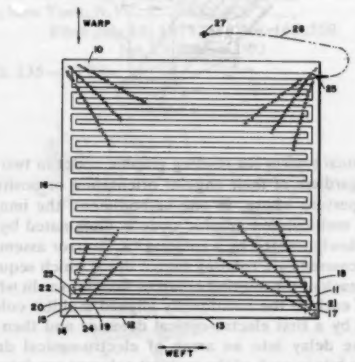
An object of the present invention is to provide a cathode for electric arc processes in active media which is based on hafnium and comprises additions selected from a group comprising rare earths, alkali metals and alkaline earth metals and their oxides as well as transition elements of the IV, V, VI and VIII groups of the D. I. Mendeleev Table taken separately or in a combination.

3,758,747

ELECTRIC MATTRESS

Charlotte M. Rohr, c/o General Delivery, Le Roy, Kans.

Filed Oct. 19, 1970, Ser. No. 81,909
Int. Cl. H05b *1/00*
U.S. Cl. 219—212 **1 Claim**



A heating cover such as a blanket for therapy having a pair of heating wires woven directly onto the cover and insulated by the fill of the cover material.

3,758,748

SYSTEM FOR REMOVING SNOW AND ICE FROM PAVED SURFACES

Thomas Reid, Ackermans Tr. Pk., RFD 2, Salem, N.H.

Filed Jan. 7, 1972, Ser. No. 216,209
Int. Cl. H05b *1/00*
U.S. Cl. 219—213 **8 Claims**

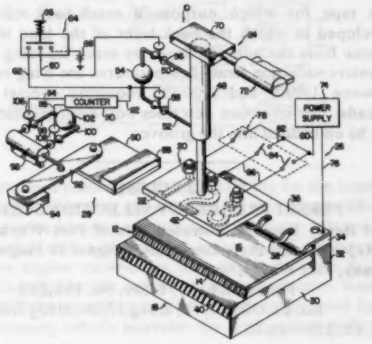
A closed two pipe underground system having closed end caps and side openings is disposed below the paved surface. Heated air is circulated through the system and flows between openings to heat the surface to melt snow and ice.

3,758,749

ARC PRINTING OF CHARACTERS

John G. Bolger, Jr., Orinda, Calif., assignor to Digilux Corporation, Oakland, Calif.

Filed Mar. 15, 1972, Ser. No. 234,889
Int. Cl. H05b *3/16*
U.S. Cl. 219—216 **7 Claims**



There is disclosed a system for arc printing characters such as numbers or letters on a metallic film bearing substrate. Features of the invention include perpendicularly moving a character shaped electrode into contact with the metallic film bearing substrate, wiping the character shaped electrode to remove metallic particles adhering thereto, and providing a resilient backing member for supporting the film bearing substrate when the electrode is pressed thereagainst. In addition, details of the operating parameters for arc printing characters is disclosed.

3,758,750

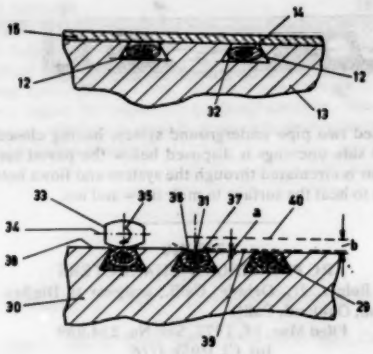
HEATING APPARATUS HAVING ONE OR MORE HEATING ELEMENTS IN ITS HEATING SURFACE

Cornelis Hendrik Van Toorn, Haarlemmermeer, Netherlands

Filed Jan. 20, 1972, Ser. No. 219,390
Claims priority, application Netherlands, Jan. 21, 1971, 7100788
Int. Cl. H05b *3/68*
U.S. Cl. 219—457 **3 Claims**

Heating apparatus provided with resistance threads lying close to the temperature contact surface thereof and being embedded in grooves which show a cross-sectional area increasing towards and extending to the bottom of the groove, preferably dove-tail shaped, in which grooves the threads are rolled-in leaving clear near to the bottom a space around that

thread half that is facing said groove bottom. Said space serves among other things as heat barrier and may be filled under extreme circumstances with a heat insulating material. The heating apparatus can have many applications such as a hot plate, or in calendering or rolling various kinds of material. A special application is stripping off the back-layer of a wide self-adhesive tape for which purpose a crack-back-roll has been developed in which the back-layer of the tape is caused to release from the adhesive layer by crack-building created by intensive radiation heat. Temperatures are lying in the reach between 1,000° and 2,000°C requiring special resistance threads. The invention describes how such resistance threads can be embedded into the grooves.

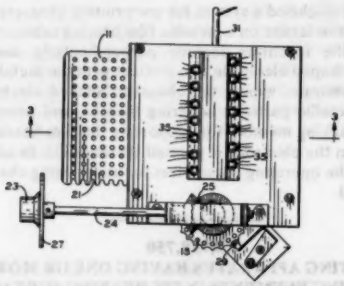


3,758,751

PRESET FREQUENCY SELECTION SYSTEM

Carl Henry Buecker, deceased, late of Fort Wayne, Ind. (by Majorie J. Buecker, executrix), assignor to Magnavox Company, Fort Wayne, Ind.

Filed Oct. 6, 1971, Ser. No. 186,892
Int. Cl. G06k 7/10; E04g 17/00; H03j 5/00
U.S. Cl. 235—61.11 E **16 Claims**



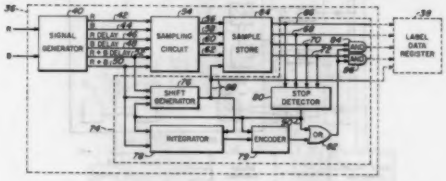
A system for prescribing one of a plurality of possible operating conditions for a radio device is disclosed wherein a punched card containing coded information identifying selected ones of the plurality is optically read in a static manner and the thus read information utilized to energize a visual readout identifying which of the several possible operating conditions has been defined by the specific information read from the card and the thus read information is also used to cause the system to operate under the prescribed operating condition. In the embodiment described, the condition is the frequency at which a transmitter and/or receiver is to operate.

3,758,752

AUTOMATIC VEHICLE IDENTIFICATION

Christos Basil Kapsambelis, Canton, and Clyde Francis Ugalde, Marlboro, both of Mass., assignors to Computer Identics Corporation, Westwood, Mass.

Filed Aug. 26, 1970, Ser. No. 67,381
Int. Cl. G06k 9/18
U.S. Cl. 235—61.11 E **3 Claims**



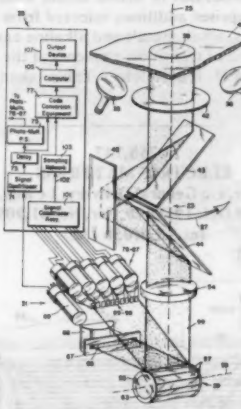
Apparatus is disclosed for determining the actual size of a section of information associated with an adjacent space by comparing an apparent dimension of the section with a like apparent dimension of the space to produce a representation of the relative size of the section and space and then determining the actual size of the section using that representation of relative size.

3,758,753

OPTICAL CODE READER SYSTEM

Jon H. Myer, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed July 16, 1971, Ser. No. 163,188
Int. Cl. G06k 7/10
U.S. Cl. 235—61.11 E **5 Claims**

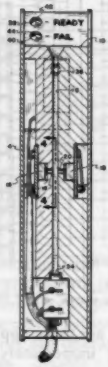


An optical system for reading graphic codes in two dimensions, regardless of their angular orientation or position in a planar aperture where, in one embodiment, the image of a multibit, multicolumn graphic code is illuminated by a light source, slowly rotated by a rotating "K" mirror assembly and rapidly scanned by a rotating mirror drum which sequentially projects each of the multibit columns first onto a slit where the image of each of the rotationally aligned multibit columns is detected by a first electro-optical detector and then after a fixed time delay into an array of electro-optical detectors where the bits in each of the multibit columns are detected. In response to the rotationally aligned image of each multibit column of the graphic code, the first electro-optical detector generates a signal which allows the array of electro-optical detectors to read out the multibit information contained in each column of the graphic code.

3,758,754
READING OF MANUALLY MANIPULATED ENCODED DEVICES

Billy M. Jensen, Sandy, and Clifton McDermott, Salt Lake City, both of Utah, assignors to Bio-Logics Products, Inc., Salt Lake City, Utah

Filed Jan. 31, 1972, Ser. No. 222,422
Int. Cl. G06r 7/10
U.S. Cl. 235—61.11 E 7 Claims

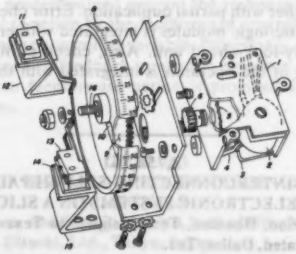


Apparatus for reading manually manipulated encoding identification tags and the like, said apparatus comprising a housing mountable on or adjacent a computer or piece of automatic equipment and having a slot extending along at least one side for slidably receiving an opaque identification device having a plurality of holes extending through said device arranged in a predetermined code, a plurality of light-emitting diodes disposed transversely of said slot along one side thereof, a plurality of photodiodes correspondingly disposed along the opposite side of said slot, means connecting said light-emitting diodes for actuation from a source external to said apparatus, and a pair of limit switches disposed adjacent opposite ends of said slot and operable by engagement with said identification device upon manual movement of said device along said slot to provide signals to said external source to control actuation of said light-emitting diodes.

3,758,755
PRE-SET COPY COUNTING DEVICE

Delbert W. Sames, Conklin, N.Y., assignor to GAF Corporation, New York, N.Y.

Filed July 16, 1971, Ser. No. 163,350
Int. Cl. G06m 3/02
U.S. Cl. 235—92 PE 7 Claims

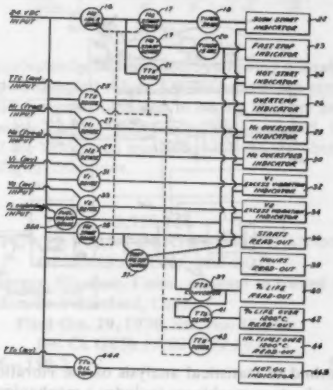


The present invention is directed to a simple and efficient device for pre-setting a machine to automatically dispense any selected number of copies of material from 1 to 100; or to function in a "continuous" mode if over 100 copies are desired. A series of switches are pulsed in accordance with the number of copies to be made such that as each copy is made the selector dial reduces by one until zero is reached. Utility of the present invention has been found as part of an overall assembly in photocopying machines.

3,758,756
MICROMINIATURE CENTER MOUNTABLE ON THE ENGINE

Douglas A. Johns, Lake Worth, Fla., assignor to Scientific Instruments, Inc., Lake Worth, Fla.

Continuation of Ser. No. 23,607, March 30, 1970, abandoned.
This application Jan. 12, 1972, Ser. No. 217,168
Int. Cl. G06m 3/08
U.S. Cl. 235—92 MT 4 Claims

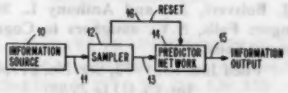


A miniaturized recorder and display device for the compilation of engine operating parameters for mounting within or about an engine housing comprising at least one microminiature control circuit, a plurality of counters and indicators for the various engine parameters, and a heat resistant housing means attachable to the inside or about the engine housing. Input data from operating engine sensors is received by the control circuitry which activates the appropriate indicating dial.

3,758,757
EXPONENTIAL PREDICTOR AND SAMPLED-DATA SYSTEMS

Otto R. Buhler, and Joseph T. Cutter, both of Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 8, 1972, Ser. No. 232,885
Int. Cl. G05b 21/02
U.S. Cl. 235—150.1 25 Claims



A sampled variable or data is modified, between sample times, by a predictor whose exponentially decaying output is continuously available for use by an analog continuous-control output device. In a hybrid digital-analog closed-loop system, having a known time constant of response, a variable condition is sampled at times to derive a sampled-data signal at each sample time. This signal is applied to an R-C dif-

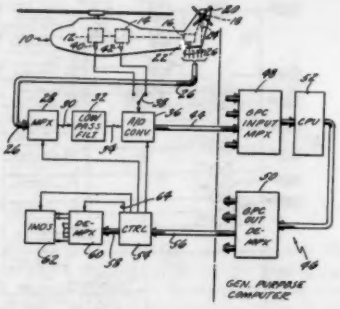
ferentiating circuit having a time constant of the order of said known time constant. At each sample time, the capacitor charge is reduced to zero by momentary closing of a switch which shorts the capacitor.

3,758,758

ROTATIONAL STATISTICAL VIBRATION ANALYSIS EMPLOYING SIDEBANDS AND/OR WEIGHTING

John E. Games, Granby, and Albert J. Wyrostek, East Windsor, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 10, 1972, Ser. No. 233,654
Int. Cl. G06f *15/34*; G01m *7/00*
U.S. Cl. 235—151.3 **4 Claims**



A method of statistical analysis of the vibrational characteristics of rotary machinery includes a mechanical analysis of the involved machinery to identify pertinent frequencies therein, such as gear mesh frequencies, together with sidebands of pertinent frequencies created by FM modulation due to imperfections of parts; selective, narrow band filtering of vibrational response of the machinery, at frequency bands including fundamental frequencies, harmonics thereof and certain upper and lower sidebands of each; statistical analysis to determine standard deviations from normal responses and choice of integral numbers thereof to be taken as indicative of degradation; and weighting of the results of the test in accordance with analytical evaluation of the various responses in indicating the health of the apparatus under test. A typical system for performing vibrational analysis in a helicopter, with on-line airborne equipment or ground based equipment, employing a general purpose digital computer, and typical logic flow of a related general purpose computer are also disclosed.

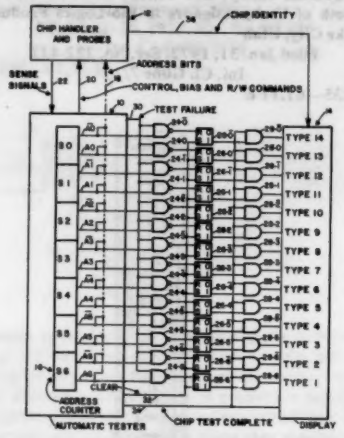
3,758,759

APPARATUS FOR DETERMINING PARTIAL MEMORY CHIP CATEGORIES

Conrad J. Boisvert, Jr., and Anthony L. Mandia, both of Wappingers Falls, N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.

Filed Jan. 13, 1972, Ser. No. 217,458
Int. Cl. G11c *29/00*
U.S. Cl. 235—153 AC **12 Claims**

There is disclosed an apparatus for determining partial memory chip categories. In the case of 128-cell chips having seven address bits, there are fourteen partial memory chip categories; permanently addressing any one of the seven address lines with a 1 or a 0 produces an effective 64-cell chip, any cell of which can be selected depending upon the address bits extended to the other six address lines. Each address bit of each bad cell on the chip causes a latch to be set as soon as it is determined that the cell is bad. Depending on its value, one of two respective partial chip categories is eliminated. After all cells have been tested the partial chip categories which have



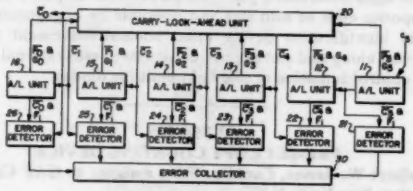
not been eliminated are those applicable to the chip, and they can be determined immediately from the settings of the latches.

3,758,760

ERROR DETECTION FOR ARITHMETIC AND LOGICAL UNIT MODULES

Joseph Lamar Cowan, Crossville, Ala., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Apr. 7, 1972, Ser. No. 242,175
Int. Cl. G06f *11/10*
U.S. Cl. 235—153 BB **5 Claims**



A modular error detector for an adder of the type which provides both arithmetic and logical functions and incorporates carry-look-ahead addition is described. The error detector includes parity prediction of logical and arithmetic terms together with partial duplication. Error checking of four bit arithmetic/logic modules is integrated with error checking of the carry-look-ahead unit. Also, check parity generation and testing of the operands is integrated with the parity prediction.

3,758,761

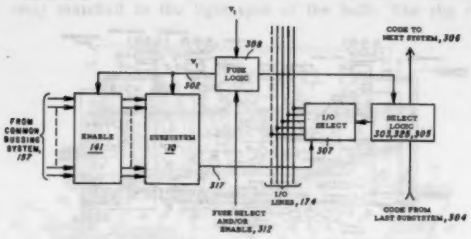
SELF-INTERCONNECTING/SELF-REPAIRABLE ELECTRONIC SYSTEMS ON A SLICE

W. S. Henrion, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 17, 1971, Ser. No. 172,462
Int. Cl. G06f *11/00*
U.S. Cl. 235—153 AK **37 Claims**

A complex electronic system such as a memory, or a stored program computer has a plurality of subsystems with predetermined interconnections on a semiconductor substrate.

Subsystem selection circuits in combination with subsystem enable circuits are interposed between one or more of the subsystems or a portion thereof and one or more common bussing systems. In one embodiment the subsystems which meet desired performance specifications are automatically selected by the selection circuits and enabled to interconnect the subsystems in a desired system configuration, and the subsystems not meeting the desired performance specifications or meeting such specifications but not necessary for the desired final system configuration are left isolated from the completed system. The system may be permanently packaged or sealed. In the event that enabled subsystems thereafter malfunction, the selector circuits are operated externally of the package to automatically disable the malfunctioning subsystems and enable substitute subsystems which meet the desired performance specifications but which were not originally necessary for completion of the system.

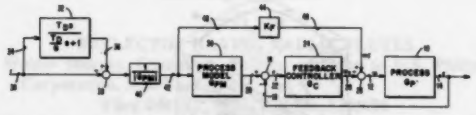


3,758,762

DECOUPLED FEEDFORWARD-FEEDBACK CONTROL SYSTEM

Bernard Littman, Philadelphia, and Charles W. Ross, Hatboro, both of Pa., assignors to Leeds & Northrup Company, Philadelphia, Pa.

Filed July 10, 1972, Ser. No. 270,419
Int. Cl. G05b *13/02, 17/02;* **G05d** *7/06*
U.S. Cl. 235—150.1 **21 Claims**



A control system combining feedforward and feedback control of a manipulated variable of a process is arranged to provide a modification of the error signal to which the feedback control responds so as to effect a decoupling of the feedforward and feedback control actions. The error signal is diminished by a signal of magnitude sufficient to minimize or reduce by a predetermined amount the response by the feedback control to action by the feedforward control as reflected in changes in the controlled variable. Provision is also made to avoid unnecessary feedback control in response to set point changes when feedforward action is provided from the set point changes.

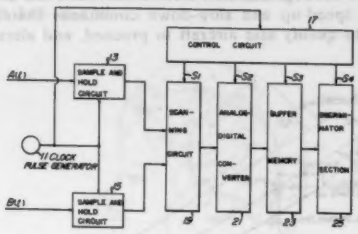
3,758,763

METHOD OF DIGITALLY PROCESSING SINUSOIDAL AC SIGNALS

Haruo Nohara, and Junichi Makino, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 5, 1971, Ser. No. 196,049
Claims priority, application Japan, Nov. 9, 1970, 45/97903
Int. Cl. G06f *15/20;* **G01r** *13/02*
U.S. Cl. 235—151.31 **10 Claims**

A sinusoidal ac signal is subjected to periodic sampling having a period Δt. There is made a product of one sampled value of the signal taken at a certain sampling point and another sampled value at the next sampling point apart, by an interval of time equal to the period Δt, from the previous sampling point. If the product is of negative value, a zero point of the signal must lie between the two sampling points. The zero point can equivalently be obtained by drawing a straight line passing the two sampled values. On the basis of the zero points of sinusoidal ac signals obtained in such a manner as above, the frequencies, phase differences, powers and the impedances of the associated transmission lines are obtained by means of a digital computer.

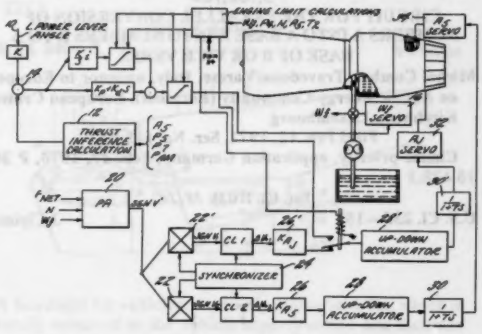


3,758,764

TURBINE POWER PLANT CONTROL WITH AN ON-LINE OPTIMIZATION CONTROL

Kermit I. Harner, Windsor, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Oct. 29, 1970, Ser. No. 85,046
Int. Cl. G05b *13/02;* **F02** *F02c*
U.S. Cl. 235—150.2 **5 Claims**



Means for speeding up the assessment and optimization process for a turbine engine control including a factor that estimates the change in steady state fuel flow required to maintain the desired thrust level.

3,758,765

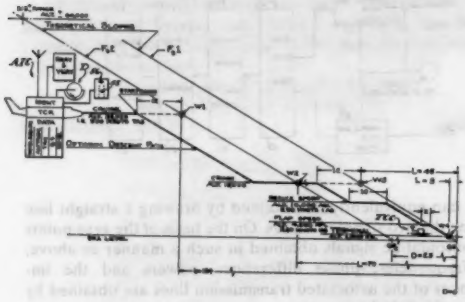
TERMINAL AIRWAYS TRAFFIC CONTROL SYSTEM

Carl W. Vietor, 2116 Linda Flora Dr., Los Angeles, Calif.

Filed May 3, 1971, Ser. No. 139,370
Int. Cl. G06g *15/50, 15/48*
U.S. Cl. 235—150.26 **45 Claims**

A system for scheduling aircraft arrivals from cruise to touchdown, and also for scheduling departures from airport to cruise altitude; wherein space considerations are reserved to the aircraft pilot and wherein time considerations are reserved to the control authority. The aircraft is navigated by the pilot along a Terminal Corridor Route (TCR) in conformance to the requirements of a ground based Traffic Control Computer (TCC). The airborne Aircraft Instrumentation Computer

(AIC) includes a programmed computer and an instrument panel display that positions the aircraft relative to an optimum time flexible energy path and responsive to in-flight data which is also telemetered to the TCC for processing. The TCC repeatedly processes all in-range aircraft on a time cycle basis and imposes and regulates time intervals between said aircraft by issuing speed-up and slow-down commands thereto as necessary to qualify said aircraft to proceed, and alerts the



control authority and pilot as well of aircraft which do not qualify and/or require corrective procedures. The system identifies all in-range aircraft and sequentially programs the flight paths thereof along the required track and through waypoints; taking into account the kinetic as well as potential energies involved for executing practical and efficient flight to the ends of infallible traffic control and safety, economy, anit-pollution and noise abatement.

3,758,766

CIRCUIT FOR THE PARALLEL CONVERSION OF NUMBERS A INTO A BASE A INTO NUMBERS B TO A BASE OF B OR VICE VERSA

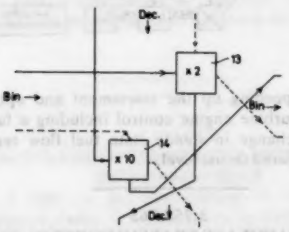
Michel Combet, Travedona/Varese, Italy, assignor to European Atomic Energy Community (Euratom), European Center Kirchberg, Luxembourg

Filed Feb. 12, 1971, Ser. No. 115,037

Claims priority, application Germany, Feb. 27, 1970, P 20 10 428.3

Int. Cl. H03k *13/24*

U.S. Cl. 235—155 **3 Claims**



A circuit for the parallel conversion of numbers expressed in terms of one base to numbers expressed in terms of another base, typically decimal numbers to binary numbers and vice versa comprises a matrix whose lines and columns constitute oriented transmission paths for the numbers expressed to the respective bases and at the crossing points interconnecting logic elements causing the production of new line and column data by multiplication of incoming column data by a modulo b, the incoming line data being regarded as a carry over from a next lower digit value and new line data resulting from the multiplication carry forward modulo b.

3,758,767

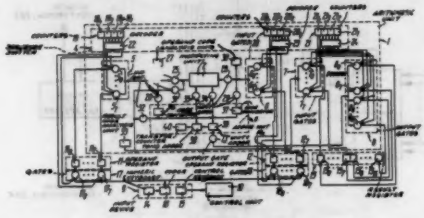
DIGITAL SERIAL ARITHMETIC UNIT

Leonid Vitalievich Kantorovich, ulitsa Akademicheskaya, 26; Valery Petrovich Tolstiev, ulitsa Zolotodolinskaya, 29, kv. 424, and Yakov Ilich Fet, ulitsa Akademicheskaya, 13, kv. 8, all of Novosibirsk, U.S.S.R.

Filed Oct. 19, 1971, Ser. No. 190,610

Int. Cl. G06f *7/50*, *7/52*

U.S. Cl. 235—159 **2 Claims**



Digital serial arithmetic unit comprising: a unit for multiplying one-digit figures, an adding unit, three rows of input gates and a row of output gates. The outputs of the input gate rows are connected with the respective inputs of the multiplying unit and with those of the adding unit. The outputs of the multiplying unit are connected with the respective inputs of the adding unit while the outputs of the adding unit are connected with the inputs of the output gate row.

3,758,768

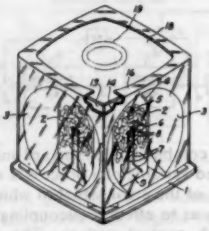
MULTILAMP PHOTOFLASH ARRAY

Roy A. Secura, East Cleveland, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed July 3, 1972, Ser. No. 268,734

Int. Cl. G03b *15/02*

U.S. Cl. 240—1.3 **4 Claims**



A multilamp photoflash array having a base and a rigid structured reflector unit with a protective cover therearound constituted solely of a light-transmitting plastic film tubing shrink-fitted tight around the reflector unit. The ends of the shrink-fitted tubing overlap the reflector unit and base to firmly hold them together. The array also has a supplementary cover adjacent to at least one end of the shrink-fitted tubing.

3,758,769

ROTATING LIGHT PROJECTOP

Marlowe A. Pichel, Altadena, Calif., assignor to Pichel Industries, Inc., Pasadena, Calif.

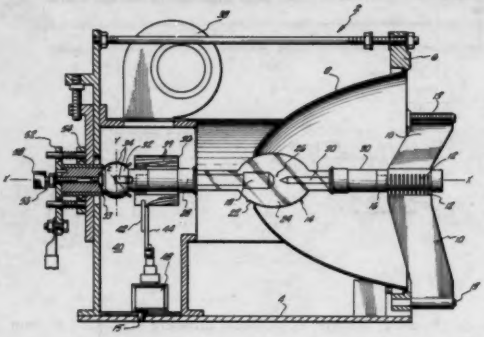
Filed Apr. 14, 1972, Ser. No. 244,201

Int. Cl. F21m ; F21v *19/02*

U.S. Cl. 240—41 R **16 Claims**

A light projector for movie projectors, search lights, slide projectors, etc. is provided with a rotating high intensity bulb that increases the life of the bulb and improves the light

characteristics of the light projector. The bulb is mounted in special adapters that permit a ready alignment of the bulb with a reflector while maintaining the alignment during rotation of the bulb. A solenoid activated indexer coacts with a pinion gear mounted with respect to the bulb to provide the rotation. The rotation can be continual, a step rotation or a non-uniform rotation. A pair of slip ring bushings are provided to mount the ends of the adapters with one adapter being machined to provide a profile or camming surface, particularly matched to the light spot of the bulb. The slip ring



bushings further provide electrical connections for the anode and cathode members of the bulb. The pinion gear is mounted on the bulb and coacts with a ratchet pawl that is driven by a solenoid for rotating the bulb. The pinion gear can double as a director of air flow from a fan along the axial length of the bulb member for cooling purposes. Various plates and rods are arranged to provide an alignment of the bulb member with respect to the reflector through the connection of one of the mounting slip ring bushings. Appropriate circuitry is provided for rotating the bulb, for example, for initiating the rotation upon the energization of the bulb member circuit.

3,758,770

REFLECTOR HAVING RADIAL FLUTES

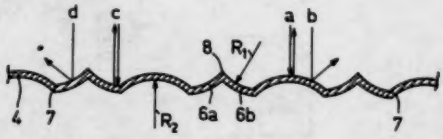
Walter Morasz, Gmunden, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 21, 1971, Ser. No. 210,408

Claims priority, application Netherlands, Oct. 13, 1970, 7014953

Int. Cl. F21v *7/09*

U.S. Cl. 240—41.36 **3 Claims**



A parabaloidal reflector adapted to receive an elongate light source along the axis of the reflector includes a number of fluted portions arranged in a repeated pattern over the surface of the reflector. The reflector achieves more uniform light reflection because adjacent fluted portions are concave or convex when viewed in cross-section and which merge in a geometrically discontinuous manner. The radius of curvature of the fluted portions in cross-section is the same from the widened open portion of the reflector to the narrowed tip.

3,758,771

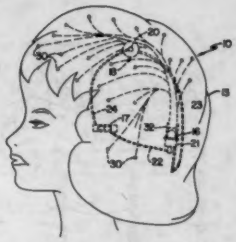
ILLUMINATED WIG

Esther E. Frohardt, and Melvin W. Frohardt, both of 3850 Nobles Rd., Littleton, Colo.

Filed Nov. 27, 1970, Ser. No. 93,059

Int. Cl. F21v *33/00*; F21l *15/06*

U.S. Cl. 240—6.4 W **5 Claims**



A light source in combination with light-conducting fibers are incorporated in a wig or removable hairpiece to provide an illuminated decorative wig. Light-emitting ends of the fibers are randomly interspersed throughout the hair of the wig and a switch is included to control light source operation.

3,758,772

HEADLIGHT FOR VEHICLES, ESPECIALLY MOTOR VEHICLES

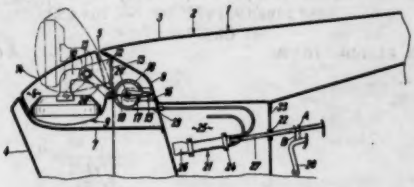
Wolfgang Eyb, Leonberg, Germany, assignor to Firma Dr. Ing. h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany

Filed Dec. 29, 1970, Ser. No. 102,373

Claims priority, application Germany, Jan. 13, 1970, P 20 01 227.5

Int. Cl. B60q *1/06*

U.S. Cl. 240—7.1 H **8 Claims**



A headlight for vehicles, especially motor vehicles, which is pivotally mounted at the vehicle superstructure and includes an operating device, which is preferably operable from the passenger space, for pivoting the headlight into the operating position or the concealed rest position. The operating device includes an operating arm which is operable through unilateral movements and is held in its end position against the effect of a spring element and by means of a locking mechanism.

3,758,773

FLASHLIGHT

Gilbert Nau, Chatellerault, France, assignor to Societe Des Accumulateurs Fixes Et De Traction (Societe Anonyme), Pont de La, Folie, France

Filed Sept. 20, 1972, Ser. No. 290,536

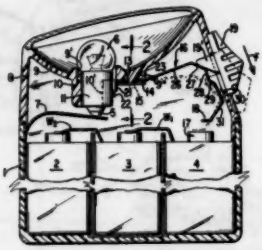
Claims priority, application France, Oct. 12, 1971, 7136667

Int. Cl. F21l *15/06*

U.S. Cl. 240—10.6 R **7 Claims**

A flashlight including a bulb and an electric power source preferably in the form of a battery of series-connected cells within a casing having a cover, one terminal of the battery being in permanent electric connection with the center contact stud of the bulb of the flashlight via a resilient blade

welded or soldered to the metal can of one of the cells which can constitute said terminal of the battery. The second terminal of the battery constituted by the center stud of another of the series-connected cells is connectable at will to the base of the bulb by deformation of a second resilient blade through the agency of a movable control means. In order to insure accurate positioning of the second blade and reliability of contact of one of its extremities with the said cell center stud on appropriate movement of the control means and reliability of contact of the other extremity of said second blade with the base of the bulb, the second resilient blade is fastened securely and permanently to an inner surface of the cover so as to position and provide proper location of the two extremities relative to said cell stud and bulb base.



3,758,774

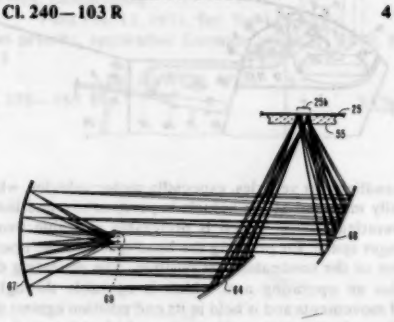
ILLUMINATION SYSTEM FOR COPIER MACHINES ARRANGED TO MINIMIZE GLARE WITH RESPECT TO AN OPERATOR

Leon H. Hildenbrandt, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 19, 1972, Ser. No. 264,093

Int. Cl. G03b 27/54

U.S. Cl. 240—103 R **4 Claims**



The present case is directed to a number of illumination systems making use of lamps and reflectors having predetermined optical configurations and arranged to insure minimal glare in the eyes of an operator using the equipment in which the illumination systems are incorporated. A first version involves a stationary paraboloid reflector cooperating with a moving parabolic cylinder reflector to illuminate an original document during a copying operation. In a second version, the moving reflector is split into two reflectors each having distinct parabolic configurations and different focal lengths. In still another version, only a single reflector is arranged for movement during scanning of an original document to project a line of light and has a predetermined configuration which is parabaloid in one direction and substantially elliptical in a direction transverse to the first direction.

3,758,775

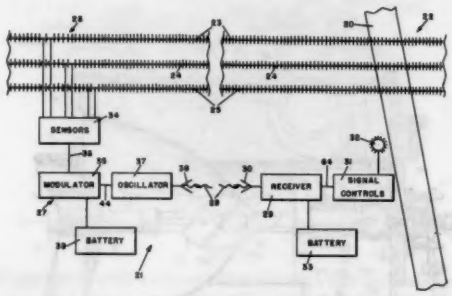
RAILROAD CROSSING SIGNALLING SYSTEM

John B. Hopkins, Cambridge, Mass., assignor to The United States of America as represented by the Secretary of the Department of Transportion, Washington, D.C.

Filed Sept. 29, 1971, Ser. No. 184,828

Int. Cl. B61l 1/10

U.S. Cl. 246—125 **4 Claims**



Disclosed is a highway-railroad crossing signalling system utilizing microwave telemetry to convey control information from a remote sensing location to a receiver coupled to an active motorist warning device.

3,758,776

APPARATUS FOR DETERMINING THE MELT INDEX OF PLASTICS

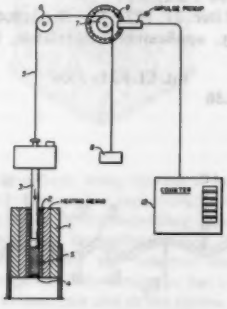
Johann-Christian Frohne, Dorsten; Ernst Hohmann, Gelsenkirchen-Buer, and Werner Schneider, Gladbeck, all of Germany, assignors to Scholven-Chemie AG, Gelsenkirchen-Buer, Germany

Filed May 12, 1969, Ser. No. 823,659

Claims priority, application Germany, July 2, 1968, P 17 73 754.1

Int. Cl. G01d 5/34

U.S. Cl. 250—231 R **2 Claims**



In the determining of the melt index of plastics, a sample is forced from a cylinder through a calibrated orifice by means of a weighted plunger in a conventional manner. In this invention, the rate of movement of the plunger is converted to a series of electrical pulses which pulses are fed to a digital counter that determines the number of such pulses over a predetermined time interval. If the apparatus including the counter are suitably calibrated, the melt index of a sample can be displayed by the counter directly without the need to convert the reading.

3,758,777

ION SOURCE FOR VAPORIZING AND IONIZING SOLID SUBSTANCES

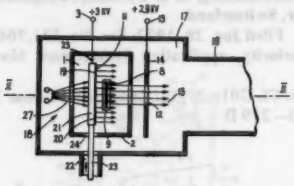
Curt Brunnee, Platjenwerbe, and Ludolf Jenckel, Bremen-St. Magnus, both of Germany, assignors to Varian Mat GmbH, Bremen, Germany

Continuation of Ser. No. 888,320, Dec. 29, 1969, abandoned. This application Nov. 3, 1971, Ser. No. 195,522

Claims priority, application Germany, Jan. 7, 1969, P 19 00 569.7

Int. Cl. H01j *39/34*

U.S. Cl. 250—41.9 S 19 Claims



High vacuum ion source for use with a mass spectro-meter to analyze solid substances. A thermally conductive body having the substance to be analyzed supported on a surface thereof is disposed in the ionization chamber with the substance supporting surface facing the ionization region of the chamber. A heat source, such as an electron emitting device, is directed toward the opposite surface of the body to heat the body and cause the substance to vaporize. The heating of the body in turn heats the chamber surfaces to prevent condensation of the vaporized substance. The vaporized substance can be ionized by particle bombardment or field emission. The body may take the form of a flat plate or a cylindrical or other box-like structure.

3,758,778

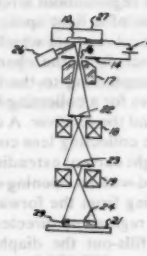
SURFACE IMAGING EXOELECTRON MICROSCOPE

Peter F. Braunlich, Bloomfield Hills, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed July 29, 1971, Ser. No. 167,313

Int. Cl. H01j *31/50, 37/26, 39/12*

U.S. Cl. 250—307 24 Claims



An electron microscope employing the principles of exoelectron emission and induced photoemission is described. Surface variations which are microscopically and optically undetectable can be visually studied and/or photographed using the inventive microscope. Exoelectron emission from the surface of the substance is depended upon, and varies with, the characteristics of the surface even though the variations are microscopically small. The detectable characteristic variations include faults, cracks, homogeneity variations, surface variations, composition impurities, and other such surface characteristics. The exoelectrons emanate from such a surface in a pattern which includes the variations. The electron pattern is magnified to produce a visual image of the small variations.

3,758,779

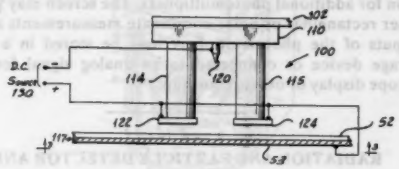
ELECTROSTATIC CHARGING APPARATUS

Edward P. Thicthener, Hove, Australia, assignor to Savin Business Machines Corporation, New York, N.Y.

Continuation of Ser. No. 12,088, Feb. 10, 1970, abandoned. This application Oct. 22, 1971, Ser. No. 191,799

Int. Cl. G03g *15/02*

U.S. Cl. 250—325 8 Claims



I provide charging apparatus for an electrostatic copying machine of the type in which a photoconductive material is charged electrostatically and exposed to a radiation pattern to form a latent image which is developed by the application of suitable ink, ink particles or colored toner. The charge retained by the material is a function of two major variables, the strength of the field reaching the photoconductive material and the duration of its exposure to the charging field. In my apparatus the charge is emitted by the charger at or near saturation level to produce a strong field. The area of the material exposed to this field at any time is limited in proportion to the field strength by shielding the material from the charge either physically, electrostatically or both.

3,758,780

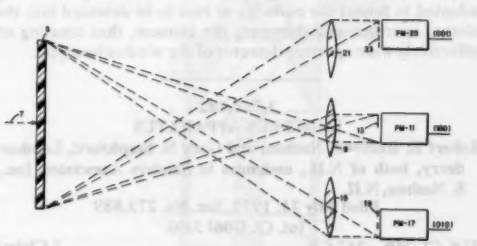
OPTICAL-BINARY CODED POSITION-SENSITIVE RADIATION DETECTOR

Lap Yen Lee, Houston, Tex., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Nov. 8, 1972, Ser. No. 304,873

Int. Cl. G01t *1/20*

U.S. Cl. 250—221 10 Claims



A position-sensitive radiation detection system has been provided for use with scintillation detection mediums wherein the position of a radiation event within a block of scintillation material is determined by an optical-binary coding system such that a digital signal output is provided which is indicative of the position of a radiation event within the scintillator. The image of the scintillator is formed onto the light sensitive areas of a plurality of photomultiplier tubes by means of a corresponding plurality of lenses. A coded screen or mask is placed between each lens and its corresponding photomultiplier tube in the position of the image to obstruct a selected portion of the image from the view of each photomultiplier so that the output of each photomultiplier tube provides one digit of a multiple bit binary signal to indicate the location of the event. The first digit or least significant bit would come from a photomultiplier tube number one which would have a screen

which obstructs one-half of the image so that the output would be either a binary "1" or "0" depending upon which half of the scintillator is struck by a single beam of ionized radiation to generate a light pulse with the detector medium. A second screen with two slits is placed in position of the image on a second photomultiplier tube to divide the image of the scintillator into four parts and forms the second bit of the binary signal, thereby dividing the images into four sections as would be coded at the outputs of photomultipliers one and two; and so on for additional photomultipliers. The screen may provide either rectangular or polar coordinate measurements and the outputs of the photomultipliers may be stored in a digital storage device or connected to an analog signal for oscilloscope display or other recording.

3,758,781

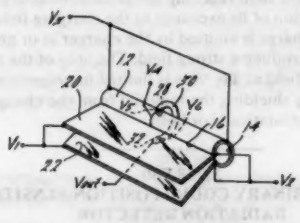
RADIATION AND PARTICLE DETECTOR AND AMPLIFIER

Kenneth C. Schmidt, Livonia, Mich., granted to the United States National Aeronautics and Space Administration under the provisions of 42 U.S.C. 2457

Filed July 15, 1969, Ser. No. 841,845

Int. Cl. G01t *1/16*

U.S. Cl. 250—207 **11 Claims**



A radiation or charged particle detector which incorporates a channel multiplier structure to amplify the detected rays or particles, the channel multiplier structure having a support multiplying element, the element having a longitudinal slot formed along one side thereof, the element supporting a pair of plates positioned contiguous with the slot, the plates being adapted to funnel the particles or rays to be detected into the slotted aperture and ultimately the element, thus creating an effectively wide aperture detector of the windowless type.

3,758,782

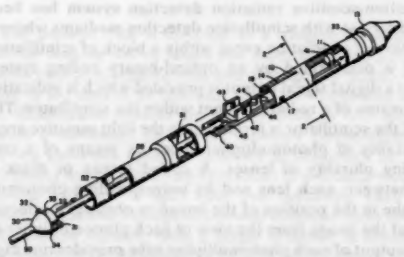
LIGHT PEN APPARATUS

Robert E. Radford, Nashua, and Gary N. Stapleford, Londonderry, both of N.H., assignors to Sanders Associates, Inc., S. Nashua, N.H.

Filed July 21, 1972, Ser. No. 273,889

Int. Cl. G06f *3/00*

U.S. Cl. 250—217 CR **7 Claims**



Light pen apparatus having a small number of parts. The light pen includes an inner barrel in which a printed circuit board is mounted. An outer barrel surrounds the inner barrel and is arranged for limited travel relative to the inner barrel in an axial direction. As the outer barrel and inner barrel are moved relative to one another a switch carried on the printed circuit board is actuated so as to allow the circuit mounted on the board to respond to light detected by a light responsive device also carried on the board.

3,758,783

READER MECHANISM FOR OPTICALLY DISCERNIBLE CHARACTERS

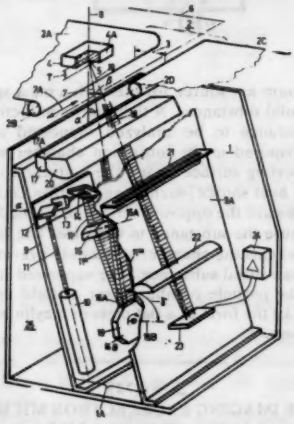
Erwin Sick, Jcking; Gernot Pinior, Germering, and Johann Plockl, Unterhaching, all of Germany, assignors to Zellweger AG, Uster, Switzerland

Filed Jan. 28, 1972, Ser. No. 221,706

Claims priority, application Switzerland, Mar. 22, 1971, 4241/71

Int. Cl. G01n *21/30*; G06k *7/00*; G06m *7/00*

U.S. Cl. 250—219 D **15 Claims**



A reader mechanism for optically discernible characters, especially characters associated with an article and applied thereat or thereto and which can be located within a predetermined depth of focus region about a reference plane and can be scanned by means of a light spot, wherein there is also present a photoelectrical receiver which takes-up a portion of the light reflected back from the character and delivers an electrical signal corresponding to the incident light current. The invention provides for a collecting lens arranged between the reference plane and the receiver. A diaphragm arranged at the focal plane of the collecting lens confronting the receiver at the region of the light current extending to the receiver. The diaphragm is provided with an opening dimensioned such that a light beam emanating from the forwardmost situated plane of the depth of focus region and directed towards the receiver at least completely fills-out the diaphragm opening in the transverse direction.

3,758,784

OPTICAL DETECTING HEAD

George Vischulis, W172 N9409 Shady Ln., Menomonee Falls, Wis.

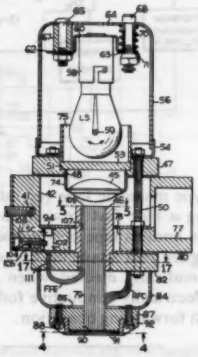
Filed Oct. 29, 1971, Ser. No. 193,884

Int. Cl. G02b *5/14*

U.S. Cl. 250—227 **38 Claims**

An optical detecting head for a line or edge target has a light-tight housing with a target-facing aperture in one end wall and a transverse wall portion intermediate its ends having a central opening therethrough; a target-illuminating optic fiber bundle extending through the central opening and having

one end positioned within the target-facing aperture end divided into a plurality of target-illuminating optic fiber sub-bundles; a lamp socket supported on the opposite housing end wall; a light source lamp within the socket; a condenser lens between the lamp and the main target illuminating fiber bundle; and a diffuser plate between the lens and the lamp. The housing transverse wall portion has a plurality of light transmitting passages each of which receives a detector photocell. First and second pairs of receiver optic fiber bundles have ends within the target-facing aperture elongated in a direction parallel to the target and spaced equal distances on opposite sides of the target reference position and intermeshed with the



target-illuminating fiber sub-bundles. Access holes through the housing wall register with the light transmitting passages, and light adjusting screws within the access holes protrude into the ligh transmitting passages and regulate the amount of light transmitted from the receiver fiber bundles to the individual detector photocells. A main feedback optic fiber bundle has one end facing the condenser lens and is divided at its opposite end into a plurality of feedback fiber sub-bundles each of which registers with one of the light transmitting passages. Light adjusting screws selectively block the amount of light transmitted from each feedback fiber sub-bundle to the associated detector photocell.

3,758,785

KEY OPERATED OPTICAL SWITCH FOR ELECTRONICS INPUT KEYBOARD INCLUDING SEMICONDUCTOR LIGHT EMITTING AND LIGHT SENSITIVE COMPONENTS AND RECIPROCATING SHUTTER

Hans-Jurgen Maute, Heilbronn-Bocklingen, Germany, assignor to Licentia Patent-Vernaltungs GmbH, Frankfurt am Main, Germany

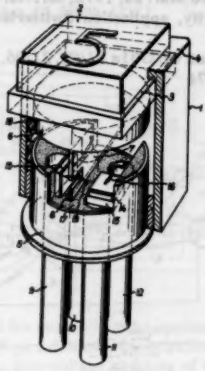
Filed Sept. 13, 1971, Ser. No. 180,053

Claims priority, application Germany, Sept. 30, 1970, P 20 47 997.4

Int. Cl. H01j *1/56*; G01d *5/34*

U.S. Cl. 250—229 **12 Claims**

A key device for an electronic input keyboard including a key head mounted in a housing so as to be displaceable therein between two positions, a light emitting element, a light sensitive element energized by a light beam from the light emitting



element, both mounted in the housing, and a light interrupting element associated with the key head for interrupting the light beam in one of the two positions of the key head.

3,758,786

APPARATUS FOR SETTING BOTH BEAMS OF AN OPTICAL TWO-BEAM INSTRUMENT TO EQUAL INTENSITY

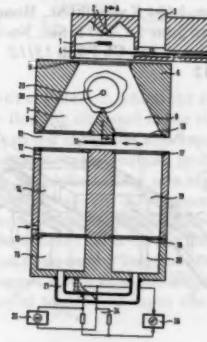
Johann Weinel, Karlsruhe, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Apr. 6, 1972, Ser. No. 241,787

Claims priority, application Germany, Apr. 6, 1971, P 21 16 849.0

Int. Cl. G01n *21/34*

U.S. Cl. 250—343 **12 Claims**



In order to adjust the optical instrument to obtain equal beam intensities in each radiation channel, a part of the reflecting wall within one of the radiation channels or at the junction of the two radiation channels is replaced by a window and a surface which can be adjusted for variable reflectivity. The surface can be formed by a rotatable disc having a non-reflective half-face and a reflective half-face which, upon rotation, changes the reflection characteristics of the wall of at least one of the channels. The surface can also be formed by a strip having a wedge shaped non-reflective band thereon which strip is movable across the window in the wall of one channel.

3,758,787

APPARATUS FOR DETERMINING THE AMOUNT OF THE DISPERSED PHASE IN A SUSPENSION

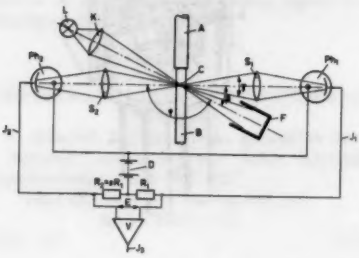
Willy Sigrist, 6373 Ennetburgen, Switzerland

Filed Mar. 24, 1972, Ser. No. 237,733

Claims priority, application Switzerland, Mar. 29, 1971, 4551/71

Int. Cl. G01n 21/00, 21/06, 21/26

U.S. Cl. 250—574 5 Claims



The amount of the dispersed phase in a suspension is determined by causing the suspension to flow in a free falling jet, directing a beam of light transversely on the jet, and measuring the light scattered at an angle of about 15° to 40° relative to a plane which includes the optical axis of the incident beam and a straight line perpendicular to that optical axis and to the longitudinal axis of the jet at the point of intersection. The resistance or output of a photoelectric cell receiving the scattered light is indicative of the amount of the suspended phase.

3,758,788

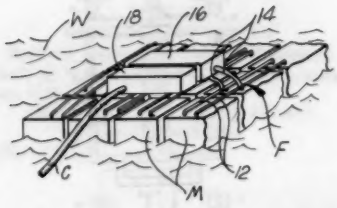
CONVERSION SYSTEM FOR PROVIDING USEFUL ENERGY FROM WATER SURFACE MOTION

Dale T. Richeson, 1404 Kalaniiki St., Honolulu, Hawaii

Filed June 14, 1971, Ser. No. 152,931

Int. Cl. F03b 13/12

U.S. Cl. 290—42 6 Claims



An energy-conversion system is disclosed for converting water surface movement, e.g. wave motion, to useful energy. Buoyant structures are provided defining pairs of opposed surfaces affixed together by pivotal structures with energy means, e.g. bellows, held spaced-apart from the pivot means. In the disclosed embodiment, the bellows are actuated with displacements between the buoyant structures, to develop positive fluid pressures to accomplish various operations. As disclosed, a turbine is driven to motivate an electrical generator for providing electrical power through a conductor to an electrical load.

3,758,789

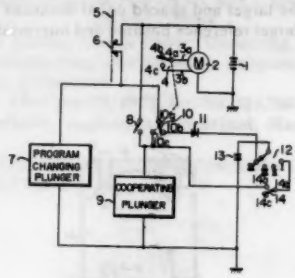
CARTRIDGE TYPE MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS

Toshio Kawada, Neyagawa; Tadashi Torama, Osaka, and Tamio Kobayahsi, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 3, 1972, Ser. No. 294,508

Int. Cl. G11b 31/00

U.S. Cl. 307—116 2 Claims



A cartridge type magnetic tape recording and reproducing apparatus having a tape fast forward mechanism and being operable with an endless tape accommodated in a cartridge, which is so designed that a tape cartridge mounted in the apparatus is automatically ejected when a sensing switch is shorted by an electrically conductive foil carried on the tape during a tape fast forwarding operation.

3,758,790

CIRCUIT ARRANGEMENT FOR THE CURRENT LIMITING INTERRUPTION OF CURRENT

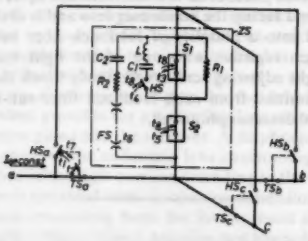
Dieter Kind, and Hagen Hartel, both of Braunschweig, Germany, assignors to Dieter Kind, Braunschweig, Germany

Filed July 21, 1972, Ser. No. 274,101

Claims priority, application Germany, July 23, 1971, P 21 36 865.0

Int. Cl. H01h 9/30

U.S. Cl. 307—136 8 Claims



A circuit arrangement for current limiting interruption of currents at high voltages in a network includes a current limiting circuit having a commutation switch and a residual current switch connected in series to a nodal point of the network. An energy dissipating resistor is connected in parallel with the commutation switch. A commutation capacitive circuit, which includes a capacitor, is connected across the commutation switch. The capacitor is of such size that the current to be interrupted is forced, after the capacitor becomes charged, to commutate to the parallel connected resistor. The current magnitude is thus reduced to a residual current which can be interrupted by the residual current switch. A plurality of separating switches are separately connected between the nodal point and respective main lines. A plurality of auxiliary switches are separately connected from each of the main lines

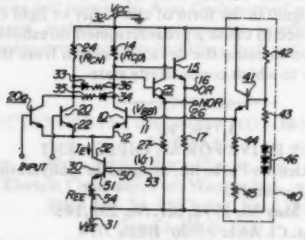
via the commutating switch and the residual current switch to the nodal point. In order to interrupt the current flow in any of the main lines, the auxiliary switch associated with the selected main line is closed and thereafter its associated separating switch, the commutation switch and the residual current switch opened in succession in the order named.

3,758,791

CURRENT SWITCH CIRCUIT

Kenji Taniguchi, and Ichiro Imaizumi, both of Kodaira, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 4, 1970, Ser. No. 43,497
Claims priority, application Japan, June 6, 1969, 44/44009
Int. Cl. H03k 19/30, 19/34
U.S. Cl. 307—215 11 Claims



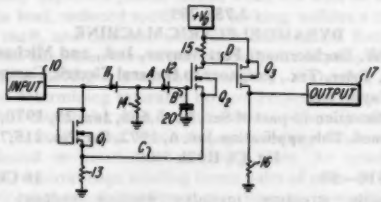
A current switch circuit consisting of a couple of transistors, one transistor acting as a reference element and the other as an input element, a pair of series connections of a resistance element and a diode being connected between the respective collectors of the said transistors with the polarity of the diodes opposite to each other, so that the emitter current of the transistors are automatically regulated to maintain a predetermined value, whereby the DC levels of the output voltages of the current switch circuit are kept constant against temperature variation of the transistors.

3,758,792

PEAK DETECTOR CIRCUIT

Robert Charles Heuner, Bound Brook, and Goetz Wolfgang Steudal, Flemington, both of N.J., assignors to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 128,702, March 29, 1971, abandoned. This application Sept. 5, 1972, Ser. No. 286,083
Int. Cl. H03k 5/18, 5/153, 17/60
U.S. Cl. 307—235 A 9 Claims



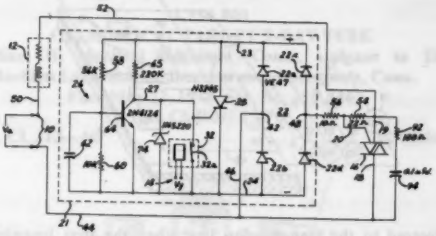
A circuit which changes state to produce a different output signal level at the peak of a substantially periodically varying analog input signal whereby the peak of the input signal is detected and indicated.

3,758,793

SYNCHRONOUS SWITCHING CIRCUIT

Joseph E. Pascente, Norridge, Ill., assignor to Grigsby-Barton, Inc., Rolling Meadows, Ill.

Filed Mar. 3, 1972, Ser. No. 231,652
Int. Cl. H03k 17/72
U.S. Cl. 307—252 B 18 Claims



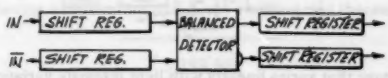
A switching circuit for controlling the application of an a.c. source to a load employs a detector for selectively triggering a control thyristor at a zero-voltage crossing of the source and means for supplying a continuous latch current to the gate of the control thyristor during succeeding cycles of the a.c. source. The control thristor is employed to latch a switching thyristor which, in turn, applies the power from the a.c. source to the load. A common rectifier arrangement is provided to energize the detector as well as to supply the continuous latch current to the gate of the control thyristor.

3,758,794

CHARGE COUPLED SHIFT REGISTERS

Walter Frank Kosonocky, Skillman, N.J., assignor to RCA Corporation, Princeton, N.J.

Division of Ser. No. 106,381, Jan. 14, 1971. This application Jan. 31, 1972, Ser. No. 222,238
Int. Cl. H01l 11/14
U.S. Cl. 307—304 15 Claims



Charge coupled shift registers in which the output stage includes an electrically floating diffusion in the substrate, of different conductivity than the substrate, and coupled to minority carrier surface charge storage location. In one form of the circuit, charge signals are shifted down one register and complements of these charge signals down another and these signals are detected by a differential signal detector connected to these diffusions. In another form of the circuit, the signal present in the diffusion of an output stage of one register along with other signals control which of a plurality of source electrodes will be employed to provide input charge signal to a second register.

3,758,795

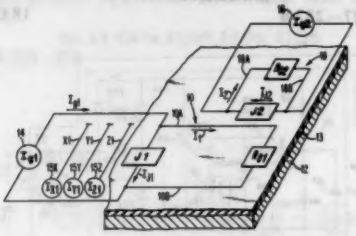
SUPERCONDUCTIVE CIRCUITRY USING JOSEPHSON TUNNELING DEVICES

Wilhelm Anacker, Katonah, and Juri Matisoo, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,841
Int. Cl. H03k 3/38, 19/02
U.S. Cl. 307—306 16 Claims

Superconductive circuitry using a first Josephson tunneling device connected to a transmission line having a termination such that no reflections result when the Josephson tunneling diode switches between two stable voltage states, in ac-

cordance with applied input signals. Means are provided for producing the input signals to switch the first Josephson tunneling device and further Josephson tunneling devices are provided whose voltage state depends on the current pulse



delivered to the transmission line when the first Josephson tunneling device switches from a first voltage state to a second voltage state. Logic circuitry is shown using this structure, as well as fan-in and fan-out Josephson tunneling device circuits.

3,758,796

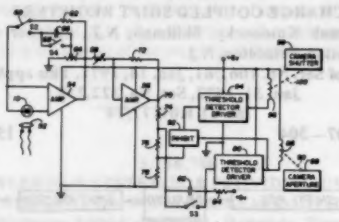
PHOTOSENSOR CONTROL

Kenneth E. Years, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 10, 1971, Ser. No. 151,956

Int. Cl. H03k *17/00*

U.S. Cl. 307—311 **22 Claims**



A voltage that varies linearly with light intensity variation is generated by an amplifier having a differential input stage connected to a light responsive diode. Two high gain transistors are included in the differential input stage to provide amplification of the signal currents of the light responsive diode. In a camera shutter and aperture control system, the linearly varying light intensity voltage is amplified to control two threshold detector circuits. An inhibiting circuit prevents one of the threshold detector circuits from responding to the light intensity voltage until the first threshold circuit has completed its desired operation.

3,758,797

SOLID STATE BISTABLE SWITCHING DEVICE AND METHOD

David R. Peterson, Mountain View, and James Conragan, Sunnyvale, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

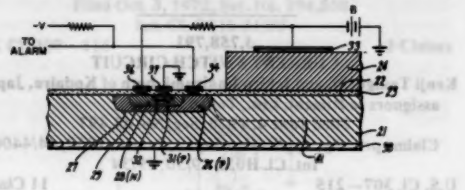
Filed July 7, 1971, Ser. No. 160,441

Int. Cl. H01l *19/00*

U.S. Cl. 307—324 **12 Claims**

Solid state bistable switching device having a semiconductor body with multiple dielectric layers carried by the semiconductor body and a metal electrode carried by the multiple dielectric layers with the device exhibiting diode-like characteristics with the forward direction occurring when the electrode is positive and a bistable switching characteristic between high and low conductive states when the electrode is reverse biased.

In the method for fabricating a solid state bistable switching device, successive dielectric layers are formed on the body of semiconductor material and a metal electrode is formed on the dielectric layers. A negative potential is applied across the



electrode to cause the device to assume a low conductivity state and then a signal in the form of electricity or light can be applied to the device to cause a predetermined threshold voltage to be exceeded to cause the device to switch from the low conductivity state to a high conductivity state.

3,758,798

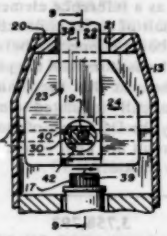
MOTOR DRIVE FOR AN IMPLEMENT

James A. Holly, Richton Park, Ill., assignor to Hollymatic Corporation, Park Forest, Ill.

Filed May 30, 1972, Ser. No. 258,105

Int. Cl. A61c *15/00*; H02k *7/14*

U.S. Cl. 310—50 **4 Claims**



An electric motor drive and handle for a body surface shaving razor, a toothbrush and like implement that can be powered from either ordinary alternating current or by a contained battery and that drives the implement and the mounting member on which it is detachably carried in a circular path that is at right angles to the surface and parallel to the teeth, the circular path being counterclockwise as viewed from the left of the implement.

3,758,799

DYNAMOELECTRIC MACHINE

Richard W. Dochterman, Fort Wayne, Ind., and Michael E. Wendt, Tyler, Tex., assignors to General Electric Company, Fort Wayne, Ind.

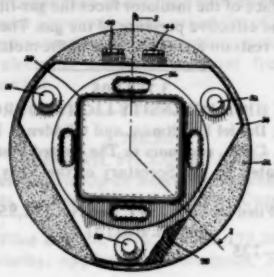
Continuation-in-part of Ser. No. 6,666, Jan. 29, 1970, abandoned. This application Jan. 6, 1972, Ser. No. 215,751

Int. Cl. H02k *5/00*

U.S. Cl. 310—89 **16 Claims**

Composite structure includes winding support with windings accommodated thereon and a housing means that does not include a metal case or shell and that does include a substantially rigid primary structural member formed of an interstitial mass of inert particulate material. Adhesive material occupies interstices of interstitial mass and bonds inert particles together and to remainder of the structure. Improved composite structure exhibits enhanced structural integrity,

corrosion resistance and, even when employing refractory material such as sand as the particulate material, exhibits measurably improved heat dissipation characteristics. Composite



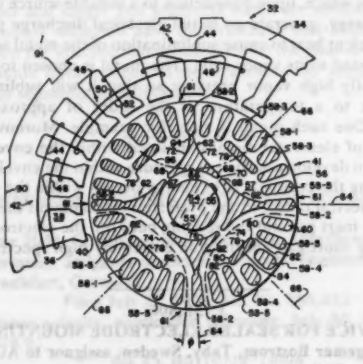
structure also provides improved protection for winding terminations and terminals. Also disclosure of making composite structures including a particulate interstitial mass and dynamoelectric machines including such structures.

3,758,800

RELUCTANCE SYNCHRONOUS MOTORS AND ROTORS FOR SAME

Herbert L. McLaughlin, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Jan. 24, 1972, Ser. No. 220,071
Int. Cl. H02k *3/06*
U.S. Cl. 310—211 **24 Claims**



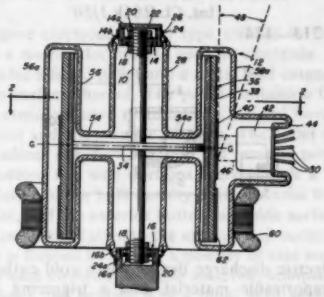
Synchronous reluctance motor with improved rotor which permits use of multiphase or single phase motor with any type of single phase winding arrangement. Single phase motor used with a permanent split capacitor arrangement, provides substantially improved pull-in torque when hot with an attached inertia load, reduced tooth order locking; utilizes a common steel shaft, and common iron rotor laminations. Rotor body includes laminated core of substantially round peripheral configuration having internal saliencies, e.g., a plurality of polar region determining saturable bridges between at least two of which is disposed a path for flux between two adjacent direct axes. Short-circuited squirrel cage winding conductors are positioned in conductor receiving slots. At synchronous speeds, squirrel cage winding forms pairs of poles of opposite polarity at the surface of the rotor, the same in number as the stator pole pairs. Rotor magnetic structure defines one or more direct magnetic axes and one or more quadrature axes and thus at least one pair of rotor polar regions or rotor poles. Direct axes pass through first flux barrier slots with inner ends in the vicinity of, e.g., spaced closely adjacent to the shaft. Adjacent extremities of adjacent first barrier slots are located to form a saturable bridge therebetween. A second type of elongated flux barrier slot is spaced between adjacent first barrier slots and transversely disposed relative to a quadrature axis. Second barrier slots may form saturable bridges with squirrel cage slots. Configuration and arrangement of flux barrier slots establish low reluctance path for direct axis flux and high reluctance path for quadrature axis flux.

3,758,801

CYLINDRICAL TARGET X-RAY TUBE

William H. Merritt, Ridgefield, Conn., assignor to The Machlett Laboratories, Incorporated, Springdale, Conn.

Filed May 22, 1972, Ser. No. 255,846
Int. Cl. H01j *35/10*
U.S. Cl. 313—60 **12 Claims**



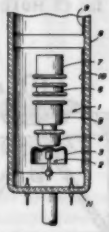
A rotating anode X-ray tube having a shaft supported by two spaced bearings and having a cylindrical anode mounted on the shaft in a manner whereby the weight or load is evenly distributed between the bearings, the anode being shaped as a cylinder, for example, mounted midway of the shaft and having a circumferential X-ray emitting ring thereon, or as a bearing-encircling skirt secured to one end of the shaft adjacent one bearing with the skirt being of a size to project substantially beyond the second bearing to provide load distribution, and having a circumferential X-ray emitting ring thereon.

3,758,802

IMPROVED CATHODE RAY TUBE HAVING A GLASS ENVELOPE COATED WITH CRYSTALLIZED GLASS

Tomoichi Kubo; Masakatsu Itazu, and Hirofumi Yamashita, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

Filed Jan. 20, 1971, Ser. No. 107,900
Claims priority, application Japan, Jan. 23, 1970, 45/6644
Int. Cl. H01j *5/08, 29/08*
U.S. Cl. 313—64 **2 Claims**



A cathode ray tube including an electron gun enclosed by a glass envelope including a neck portion is disclosed in accordance with the teachings of the present invention wherein arcing between electrodes of the cathode ray tube is

minimized by providing a coating of crystallized glass formed by heat-treatment of sealing glass, on the surface of the inner wall of said neck portion and coextensive with said electron gun, and a coating of conductive material, spaced from said coating of crystallized glass, on the surface of the inner wall of said neck portion. A method of treating a cathode ray tube to minimize arcing between the electrodes thereof is also disclosed.

3,758,803

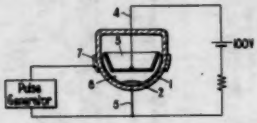
ELECTRIC DISCHARGE DEVICES

Kenneth George Cook, Northwood, and Robert Joseph Wheldon, Chalfont, St. Peter, both of England, assignors to The M-O Valve Company Limited, London, England

Filed Feb. 18, 1972, Ser. No. 227,392

Int. Cl. H01k *1/50*

U.S. Cl. 313—174 **5 Claims**



An electric discharge device has a cold cathode of solid, easily vaporizable material, and a triggering arrangement comprising a dielectric member, disposed near the cathode and anode, and having on one side a sputtered film of easily vaporizable material and on the other side a trigger electrode. The device operates at high vacuum, and a discharge can be triggered by applying a voltage pulse to the trigger electrode, causing vaporization of material from the film. For example, the device may be a switching device, a travelling-wave device, or an ion propulsion device.

3,758,804

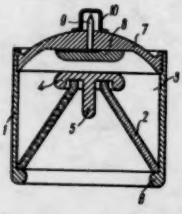
GAS-FILLED DISCHARGE TUBE

Ernest Alexeevich Avilov, ulitsa Lenina, 14, kv. 6; Nikolai Vasilievich Belkin, ulitsa Tolyatti, 11, kv. 39, both of Moscow; Vladimir Vasilievich Galtsov, ulitsa Engelsa, 12/1, kv. 26, Ryazan; Anatoly Petrovich Zykov, ulitsa Gagarina, 25, kv. 7; Mikhail Alexeevich Kanunov, ulitsa Pushkina, 26, kv. 11, both of Moscow; Jury Vladimirovich Kiselev, ulitsa Podgornaya, 3, kv. 29, Ryazan; Mikhail Vladimirovich Mityaev, Ryazansky prospekt, 95, korpus 4, kv. 55, Moscow; Vyacheslav Vladimirovich Nikitin, ulitsa Firsova, 12, kv. 17, Ryazan; Anatoly Alexandrovich Razin, ulitsa Lenina, 32, kv. 16, Moscow; Jury Leonidovich Stankevich, ulitsa Silkina, 7, kv. 92, Moscow; Veniamin Aronovich Tsukerman, ulitsa Vavilova, 15, kv. 75, Moscow, and Lev Samuilovich Eig, Leninsky prospekt, 43, kv. 35, Moscow, all of U.S.S.R.

Filed Dec. 2, 1971, Ser. No. 204,245

Int. Cl. H01j *17/16*

U.S. Cl. 313—220 **2 Claims**



A gas-filled discharge tube in which there is provided a shell in the form of a metal case and an insulator. The insulator has the shape of a truncated cone and is disposed inside the metal case and defines together with the latter, a space filled with gas. Disposed inside the space are electrodes provided with leads, one of which is electrically connected to the metal case. The side surface of the insulator faces the gas-filled space so as to take up the effective pressure of the gas. The larger base of the insulator rests on an inner flange of the metal case.

3,758,805

A HIGH INTENSITY LIGHT SOURCE

Myer Geller; Daniel E. Altman, and Glidden J. Barstow, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 27, 1971, Ser. No. 192,857

Int. Cl. H01j *61/18*

U.S. Cl. 313—225 **8 Claims**

A high intensity light source produces the principal portion of its light energy output substantially within the spectral range of 4,600 A to 5,000 A. A sealed envelope of material substantially transparent to light energy within the aforementioned range contains electrically conductive electrodes, a suitable starter gas, preferably of an inert character, and also an amount of elemental metal. The electrodes have external terminals which, upon connection to a suitable source of electrical energy, generate an initial electrical discharge producing sufficient heat to cause sublimination of the metal so that it is converted to its vapor state. The metal is chosen to have a sufficiently high vapor pressure so that it will sublimate in response to a temperature of the order of approximately 800°C. One such metal is zinc, for example. Moreover, the amount of elemental metal contained within the envelope is such as to develop a sufficient pressure within the envelope for producing the principal light energy output within the desired stated spectral range. In the preferred embodiment the starter gas is an inert gas and the spacing between the electrodes is a relatively short gap ensuring an extremely high spectral radiance.

3,758,806

DEVICE FOR SEALED ELECTRODE MOUNTING

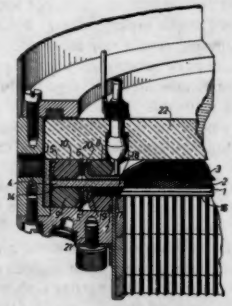
Bertil Ingemar Bostrom, Taby, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

Filed Jan. 28, 1972, Ser. No. 221,673

Claims priority, application Sweden, Jan. 29, 1971, 1120/71

Int. Cl. H01j *1/90, 19/44, 1/46*

U.S. Cl. 313—268 **5 Claims**



Sealed electrode mounting, in a spark discharge chamber, comprising a plane cathode and, parallel thereto, two lattice-

shaped electrodes constituting an auxiliary electrode and anode enclosed in a space forming the spark discharge chamber, the electrodes being along its entire circumference in electrically conductive connection with an electrically conductive material surrounding the periphery of the respective electrodes and extending through sealing means, which run along said electrical material, and out from the spark discharge chamber.

3,758,807

ELECTRIC FILAMENT LAMP

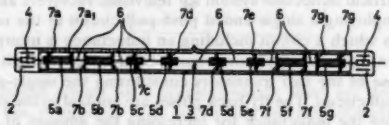
Herbert Kamiel Maria Op de Beeck, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 30, 1971, Ser. No. 175,867

Claims priority, application Netherlands, Sept. 3, 1970, 7013030

Int. Cl. H01j *1/92, 19/46*

U.S. Cl. 313—273 **1 Claim**



Copying lamps having a filament which is constructed from shorter and longer coil segments which are connected by intermediate members have the drawback that after recrystallisation the intermediate members with the ends of the longer segments have warped. This is avoided by supporting the longer segments at their ends.

3,758,808

DISPENSER CATHODE AND METHOD FOR MAKING SAME

Walter Held, Gunzburg, and Rolf Lerch, Ulm/Donau, both of Germany, assignors to Licentia Patent-Verwaltungs GmbH, Frankfurt, Germany

Filed July 27, 1971, Ser. No. 166,453

Claims priority, application Germany, July 30, 1970, P 20 37 874.9

Int. Cl. H01j *1/14, 19/06*

U.S. Cl. 313—346 **6 Claims**

A dispenser cathode composed of a cathode carrier forming an electrical heating element and presenting means, such as perforations, for effecting an intimate meshing between the cathode carrier and a cathode body, and a pressed cathode body meshed in a portion of the cathode carrier and formed from a moldable material. The dispenser cathode is constructed by forming a cathode carrier as an electrical heating element, and pressing a moldable material into the form of a cathode body and simultaneously fastening the material to the cathode carrier to cause it to mesh intimately therewith.

3,758,809

EMISSIVE FUSED PELLET ELECTRODE

Richard A. Menelly, Danvers, Mass., and Edmund R. Kern, Hampton, N.H., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Continuation-in-part of Ser. No. 150,311, June 7, 1971, Pat. No. 3,502,855. This application Dec. 3, 1971, Ser. No. 204,478

Int. Cl. H01j *1/30, 1/58*

U.S. Cl. 313—346 R **10 Claims**

An emissive electrode of the type utilized in fluorescent lamps and a method for making such an electrode. The electrode includes a fused pellet and a metal lead extending from the bottom surface thereof. The pellet contains a fused mixture of electron emissive material and a metal having a high melting point and a low vapor pressure. The pellet has a bulk density gradient structure wherein the interior portions and exterior bottom and side portions thereof have a high bulk density relative to the bulk density of the exterior top portion of the pellet, and the exterior bottom and side surfaces of the pellet are smooth relative to the exterior top surface thereof. The pellet is formed by mixing a powder of said metal with a powder of said electron emissive material, compressing said mixed powder and heating it in a mold until an exothermic reaction occurs.

3,758,810

ELECTRIC DISCHARGE TUBE COMPRISING A ROD GRID

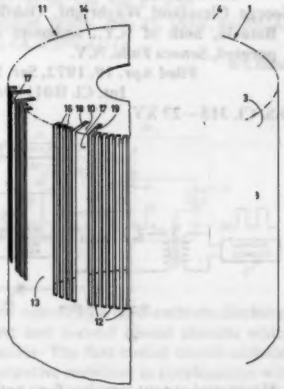
Horst Seifert, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 18, 1971, Ser. No. 199,882

Claims priority, application Germany, Nov. 21, 1970, P 20 57 331.3

Int. Cl. H01j *1/46, 17/12, 19/38*

U.S. Cl. 313—356 **5 Claims**



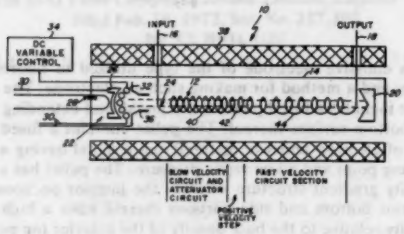
A metal-ceramic tetrode or triode which comprises a cylindrical rod grid which is manufactured by means of a spark erosion process. In order to improve the mechanical stability of the grid and also to shift the resonant frequency to higher frequencies, the grid comprises wide and narrow rods. Since the wide rods bend inwardly or outwardly during the spark erosion process, the slots, to avoid said drawback, adjoining the wide rods extend in at least one inwardly extending flange

of the cylinder farther in the direction normal to the curved surface of the cylinder than the slots present between the thin rods.

3,758,811
TRAVELING WAVE TUBE LINEARITY CHARACTERISTICS

Jeffrey Wong, Boston, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Aug. 2, 1972, Ser. No. 277,191
Int. Cl. H01j 25/34
U.S. Cl. 315—3.6 **4 Claims**

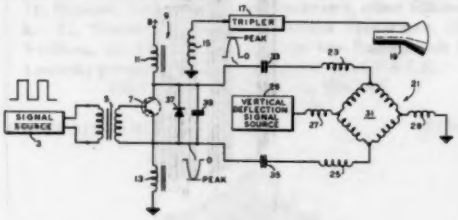


A traveling wave electron interaction device is provided having means for reducing intermodulation product amplitudes and cross-modulation in multisignal operation. An axial variation of a delay line phase velocity is introduced at substantially low levels of electron beam modulation to provide a positive velocity profile. The fundamental circuit wave of one signal is allowed to proceed with relative little gain while the space harmonic component of another signal is allowed to drop in magnitude thereby improving traveling wave tube linearity by desynchronizing of space harmonic interaction with the electron beam. The invention is suited for low power level communication type devices where signal distortion is a critical parameter.

3,758,812
ISOLATED HORIZONTAL AND VERTICAL OUTPUT CIRCUITRY HAVING A COMMON WINDING

George Cleveland Waybright, Oakfield, and William Elias, Batavia, both of N.Y., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Apr. 19, 1972, Ser. No. 245,321
Int. Cl. H01j 29/70
U.S. Cl. 315—27 XY **6 Claims**

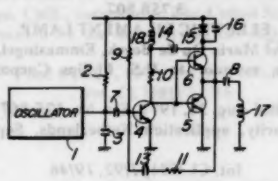


Horizontal output circuitry for a cathode ray tube system includes a deflection yoke associated with the cathode ray tube and having horizontal, vertical, and common windings. An electron device is coupled via a first portion of a split winding of a transformer to a potential source and via a second portion to a potential reference level while a charge storage means couples each of the first and second portions of the split winding to first and second horizontal deflection windings connected to the common windings formed into a bridge configuration.

3,758,813
VERTICAL DEFLECTION SYSTEM

Yoshinori Kitamura, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 10, 1970, Ser. No. 96,760
Claims priority, application Japan, Dec. 19, 1969, 44/102710
Int. Cl. H01j 29/70
U.S. Cl. 315—27 TD **7 Claims**

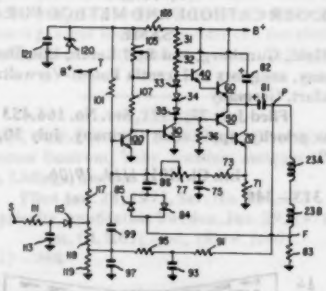


A vertical deflection system for television receivers and the like employing a single-ended push-pull circuit in the output stage in which a circuit including an inductance is interposed between a power supply or ground and the base circuit of at least one of the two transistors constituting the single-ended push-pull circuit. The fly-back pulses are applied to the circuit including the inductance for increasing the amount of feedback thereby increasing the conduction rate of the transistor, shortening the fly-back period and improving the rate of utilization of power supply voltage.

3,758,814
WIDE ANGLE DEFLECTION SYSTEM

Pak Chong Tang, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 15, 1971, Ser. No. 106,806
Int. Cl. H01j 29/70
U.S. Cl. 315—27 TD **5 Claims**



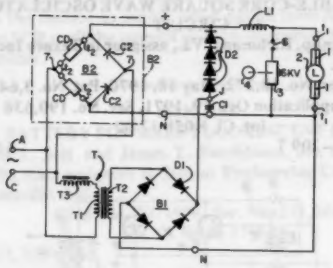
Wide angle (e.g., 110°), large screen (e.g., 25 inch diagonal) color television display system employs a narrow-neck (e.g., 29 centimeter diameter) color kinescope with a deflection yoke having toroidal horizontal and vertical deflection windings. While power requirements of toroidal horizontal windings are met by a thyristor horizontal deflection circuit, toroidal vertical windings are driven by a transistor vertical output amplifier in a quasi-complementary symmetry, Class B, push-pull configuration. Capacitor is provided in negative feedback path between amplifier output and driver input, establishing Miller integrator action for linear sawtooth wave generation. Diode in series with capacitor provides voltage rise aiding rapid turn-on of driver at end of retrace interval. Oppositely poled diode shunting first diode completes low impedance capacitor discharge path during retrace interval.

3,758,815

SUPPLEMENTAL ENERGY STORAGE CIRCUIT FOR ARC DISCHARGE LAMPS

Fredrick W. Paget, Rockport, Mass., assignor to GTE Sylvania Incorporated, Danvers, Mass.

Filed Jan. 4, 1972, Ser. No. 215,292
Int. Cl. H05b *39/00*
U.S. Cl. 315—101 10 Claims



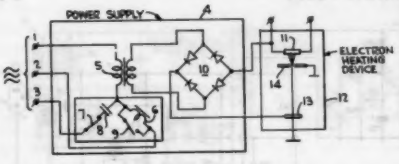
A ballast circuit for a tungsten-iodide short arc discharge lamp has, in addition to an alternating current full wave rectifier bridge supplying low voltage operating current to the lamp, a capacitor-diode bridge circuit whose discharge characteristic of voltage multiplying and low current is controlled so that discharge occurs while the rectifier bridge is approaching or at zero volts, at the time in each alternating current half cycle when it is needed to promote arc striking or prevent extinction of an arc.

3,758,816

DEVICE FOR AUTOMATICALLY CONTROLLING ELECTRICAL CONDITIONS OF AN ELECTRON BEAM UNIT

Igor Pavlovich Brukovsky, 1, Mosfilmovsky pereulok, 5, korpus 2-B, kv. 16; Pavel Borisovich Yakovlev, ulitsa Tolbukhina, 9, korpus 1, kv. 15; Kirill Davidovich Gutterman, 3 Tverskaya-Yamskaya ulitsa, 29, kv. 8; Alexandr Vasilievich Perov, Pervomaiskaya ulitsa, 69, kv. 28, all of Moscow; Vladimir Fedorovich Zhukov, ulitsa Cheljuskintsev 3, kv. 21, Rzhev Kalininskoi Oblasti; Larisa Petrovna Nekrasova, Sovetskaya ploschad, 10, kv. 36, Rzhev Kalininskoi Oblasti, and Jury Dmitrievich Ivanovsky, ulitsa Mayakovskogo, 4, kv. 15, Rzhev Kalininskoi Oblasti, all of U.S.S.R.

Continuation-in-part of Ser. No. 841,815, July 15, 1969, abandoned. This application Sept. 17, 1971, Ser. No. 181,466
Int. Cl. H05b *41/16*
U.S. Cl. 315—137 3 Claims



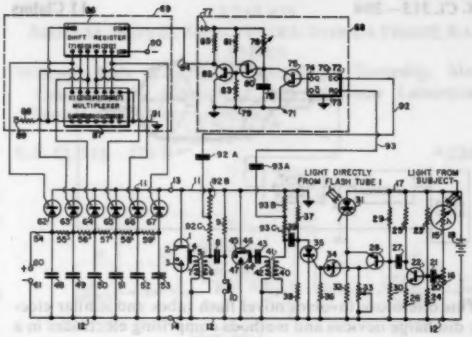
A power supply of an electron beam unit has switching components and comprises means which enables the power supply to operate both as a current source and as a voltage source, said means being in the form of at least one reactive component connected in the circuit of the power supply by at least one of its switching components.

3,758,817

FLASH APPARATUS WITH AUTOMATIC LIGHT TERMINATION USING A NUMBER OF STORAGE CAPACITORS

Franklin P. Elliott, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 29, 1971, Ser. No. 193,941
Int. Cl. H05b *37/02*
U.S. Cl. 315—151 2 Claims



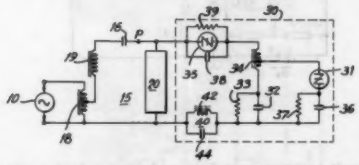
A counter and a plurality of SCR's normally connect only one of a plurality of storage capacitors to a flash tube until the latter is fired, at which time a clock is started to advance the counter. The latter then connects the capacitors in discharging relationship to the tube in repeated sequence until a photocell has received a predetermined quantity of light reflected from a subject to be photographed which receives the light emitted by the tube. At that time, the clock and the counter are stopped and a quench tube is fired which effectively short-circuits the flash tube and terminates its production of light. Each capacitor is recharged following its discharge into the flash tube.

3,758,818

STARTING CIRCUIT FOR DISCHARGE LAMPS

Isao Kaneda, Otsu, Japan, assignor to New Nippon Electric Co. Ltd., Osaka, Japan

Filed July 23, 1970, Ser. No. 57,529
Claims priority, application Japan, July 25, 1969, 44/59243
Int. Cl. H05b *41/14*
U.S. Cl. 315—207 6 Claims



A circuit is provided for operating a cold-cathode discharge lamp which includes first and second closed circuits which share in common a capacitor. The first closed circuit includes a power source and an inductive stabilizer in combination with the aforesaid capacitor and the second closed circuit includes an inductor and a bidirectional diode thyristor in combination with the capacitor. A second bidirectional diode thyristor is provided which constitutes with the second closed circuit a starting circuit for the discharge lamp. The second thyristor has a lower break-over voltage than the first thyristor. The second closed circuit is such that the capacitor is charged through the second said bidirectional diode thyristor to the instantaneous value of the power source and is discharged by the first said bidirectional diode thyristor through the inductor

to produce a high voltage which is applied to the lamp to ignite the same

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3,758,819

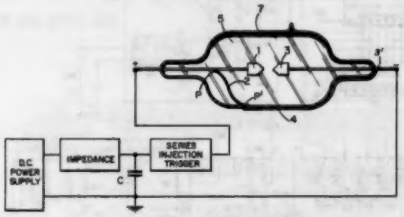
FLASH DISCHARGE APPARATUS AND METHOD

Jacob Goldberg, Cambridge, Mass., assignor to U.S. Scientific Instruments, Inc., Watertown, Mass.

Filed Dec. 27, 1971, Ser. No. 212,507

Int. Cl. H05b *37/00*

U.S. Cl. 315—204 **11 Claims**



This disclosure involves novel flash tubes and similar electric discharge devices and methods comprising electrodes in a gaseous medium between which an electrical discharge is to pass and in which the reliability of repetitive operation is assured through the use of novel cooperative internal initiator conductor means and cooperative external conductive path means at opposite walls of the housing containing the gaseous medium.

3,758,820

CIRCUIT ARRANGEMENT FOR PRODUCING A HIGH VOLTAGE SPARK

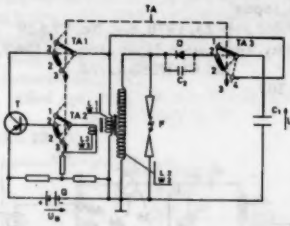
Peter Lohberg, Rodheim v.d.H., Germany, assignor to Braun Aktiengesellschaft, Frankfurt/Main, Germany

Filed July 23, 1971, Ser. No. 165,080

Claims priority, application Germany, July 27, 1970, P 20 37 067.6

Int. Cl. H01t *15/00*

U.S. Cl. 315—209 T **4 Claims**



A circuit arrangement for producing a high voltage spark comprising a semi-conductor device having a conducting and a non-conducting state, a source of low power unidirectional voltage, such as a battery or accumulator, a feedback coupled transducer means coupled to the source and the semi-conductor device for storing energy from the source during a conduction phase of the semi-conductor device, the feedback transducer device having a primary and a secondary circuit, a diode and a capacitor coupled in the secondary circuit of the transducer device, the stored energy being discharged into the secondary circuit during one of the phases of the semi-conductor device, a sparkgap connected in parallel with the secondary winding of the transducer device, a switching device in the primary circuit of the transducer device for establishing the conducting or non-conducting phases of the semi-conductor device, and a switching means in the secondary circuit for the discharging of the stored energy across the sparkgap, the capacitor being connected in circuit relationship with the primary circuit so that upon switching of the switching device in the secondary circuit, the capacitor discharges over the primary circuit into the transducer and the spark voltage is produced over the sparkgap, the semi-conductor device being isolated from the transducer device electrically or galvanically.

3,758,821

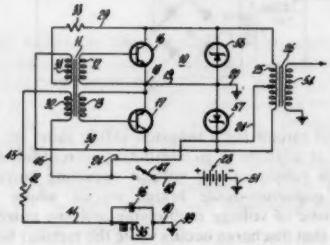
SATURABLE-CORE SQUARE WAVE OSCILLATOR CIRCUIT

Robert E. Canup, Richmond, Va., assignor to Texaco Inc., New York, N.Y.

Division of Ser. No. 38,272, May 18, 1970, Pat. No. 3,647,345. This application Oct. 19, 1971, Ser. No. 190,638

Int. Cl. H05b *37/02*

U.S. Cl. 315—209 T **6 Claims**



An improved saturable-core transistor oscillator circuit for feeding a negative resistance characteristic load. It includes a Jensen type oscillator that has an added saturation winding to control starting and time duration of the oscillation. There is a high turns ratio output transformer connected to the load and a saturable-core transformer in the oscillator. And, the electromagnetic characteristics of the output transformer are set to resonate with the output at no load in order to provide high starting voltage, while the electromagnetic characteristics of the saturable-core transformer are set to provide an increase in the oscillator frequency as the load increases in order to reduce the output voltage so as to compensate for the negative resistance effect of the load.

3,758,822

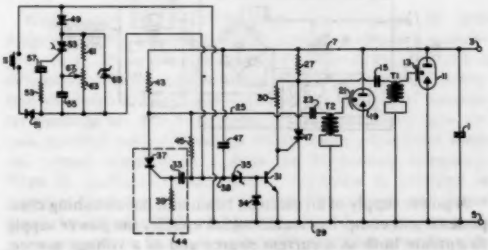
COMPUTER TYPE FLASH APPARATUS WITH NOISE INHIBITING QUENCH CIRCUIT

Dennis Joseph Wilwerding, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 108,879, Jan. 22, 1971, abandoned. This application Apr. 20, 1972, Ser. No. 245,975

Int. Cl. H01j *17/34*; **H05b** *41/30*

U.S. Cl. 315—241 P **5 Claims**



A computer type flash apparatus includes a switching device, a sensing transmitter and a flash device. The switching

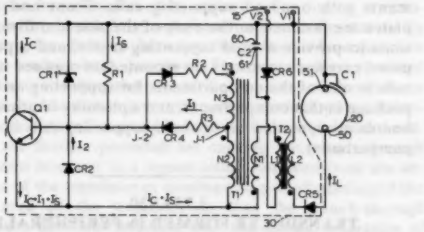
device is selectively operable for providing a contact closure to fire the flash device, which, in turn, produces light for the illumination of a scene to be photographed. The sensing transmitter provides a quench signal upon receipt of a predetermined amount of light from the scene. The quench signal is applied through a capacitor to the gate terminal of a silicon controlled rectifier (SCR) to trigger the SCR thereby actuating a quench circuit in the flash device. The operation of the quench circuit terminates the production of light by the flash device. A resistor is connected between the gate and cathode terminals of the SCR. When the flash device is fired, a signal representative thereof effects the appearance of a voltage across the resistor to inhibit noise signals from falsely triggering the SCR until the quench signal is generated by the sensing transmitter.

3,758,823

BATTERY POWERED FLUORESCENT LIGHT

Preston L. Jett, and James T. Hutchinson, Jr., both of Huntsville, Ala., assignors to Jettson Engineering Company, Inc., Huntsville, Ala.

Filed Dec. 23, 1971, Ser. No. 211,208
Int. Cl. H05b *37/02*
U.S. Cl. 315—219 **12 Claims**



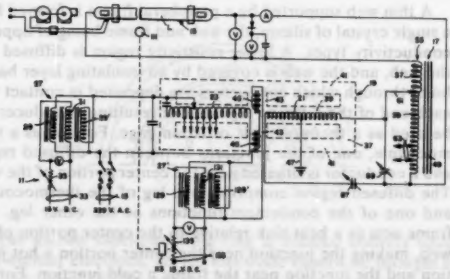
A battery powered transistor inverter circuit operates a fluorescent light without requiring a capacitor ballast or starting filament current and is enclosed with the light in a waterproof, shock resistant, light transmitting case.

3,758,824

AMPLIFICATION OF INDUCED RADIATION AND MEANS FOR ATTAINING THE SAME

Carl J. Warneke, Chicago, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Continuation of Ser. No. 691,455, Dec. 18, 1967, abandoned.
This application July 23, 1970, Ser. No. 64,057
Int. Cl. H05b *41/16*
U.S. Cl. 315—246 **8 Claims**



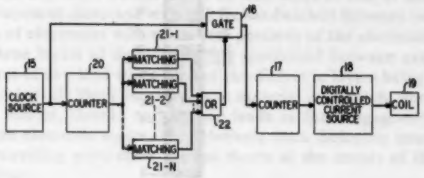
Production of, high intensity, stroboscopic radiation rich in ultraviolet rays, by energizing gaseous discharge lamps, containing a noble gas or gases and metallic vapor, with a modified A.C. wave, derived from a conventional source of sinusoidal alternating current power, and characterized by sharp peaks of short duration of the conventional power source from which the sharply peaked lamp-energizing wave is derived, the disclosure also embracing circuitry energized from a convention A.C. power source for producing the multiplied frequency, sharply peaked lamp-energizing wave, including a resonant circuit adjusted for slightly off resonance operation.

3,758,825

DIGITAL DEFLECTION SYSTEM FOR CATHODE RAY TUBES

William John Kapers, Jr., Randolph Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Int. Cl. H01j *29/70*
U.S. Cl. 315—276 D **4 Claims**



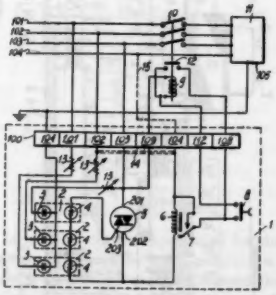
A linearly changing current applied to a deflection coil of a relatively flatfaced cathode ray tube results in a nonlinear sweep on the tube face. The disclosed circuit, which comprises a clock source, a pair of counters, word recognizing circuitry, and a digitally controlled current source, reduces this nonlinearity by producing a sweep current having a nonuniform staircase waveshape.

3,758,826

PHOTOELECTRONIC SAFETY DEVICE

Giuseppe Zizola, c/o Zanfranceshi Via Longhin 1 Treviso, Ponzano, Italy

Filed Sept. 29, 1971, Ser. No. 184,806
Claims priority, application Italy, Oct. 1, 1970, 82525 A/70; Apr. 29, 1971, 82517 A/71
Int. Cl. H02h *3/28*
U.S. Cl. 317—31 **1 Claim**



A photoelectronic safety device for connection to a three phase electrical supply line feeding a user apparatus. This device comprises at least three lamps star connected to the supply line, at least one photoresistance facing the lamps and emitting an outlet signal in response to the variations of luminosity of the lamps, amplifier means controlled by the outlet signal, and switching means in the supply line controlled by the amplifier means and adapted to disconnect the user apparatus from the line.

3,758,827

PIEZOELECTRIC IGNITION DEVICE

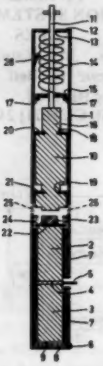
Johann Schroder, Aachen; Hans Gunther Ganser, Stolberg, and Heinrich Oepen, Gressemich, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 30, 1972, Ser. No. 258,128

Claims priority, application Germany, June 18, 1971, P 21 30 221.6

Int. Cl. F23q *13/00, 3/01*

U.S. Cl. 317—81 9 Claims



A piezo-electric ignition device which comprises a housing in which are incorporated one behind the other a piezo-electric element, a hammer and a spring cooperating with the hammer. A plastic-elastic damping disk is arranged between the hammer and the element. Braking means inhibit the movement of the hammer in the direction of the spring.

3,758,828

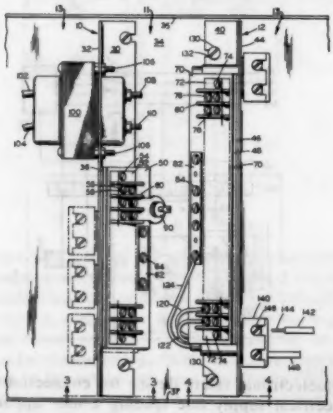
RELAY CENTER FOR REMOTE CONTROL WIRING SYSTEM

Joseph P. Stefani, Warwick, R.I., assignor to General Electric Company, Providence, R.I.

Filed Feb. 29, 1972, Ser. No. 230,290

Int. Cl. H02b *1/04*

U.S. Cl. 317—113 3 Claims



A relay center is provided for control with lower voltage control circuits of higher voltage power supply circuits. The relay center has a two level partition detachably mounted in a dimensionally conforming metal box. The first or rear level of the partition serves to position and retain relays extending through the partition between a high voltage and a low voltage side. The second or upper level is equipped with a terminal bar permitting highly visible, easily accessible, low voltage wiring of the relays.

3,758,829

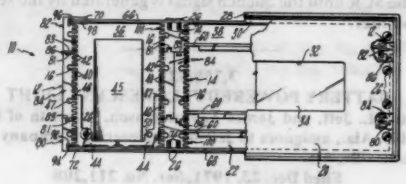
VERSATILE MODULAR ENCLOSURE WITH EXTRUDED WALL SECTIONS

Arthur W. Kroll, Wethersfield, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.

Filed Feb. 8, 1971, Ser. No. 113,266

Int. Cl. H02b *1/10*

U.S. Cl. 317—117 4 Claims



An enclosure for electrical equipment having modular side and divider panel extrusions forming two separate compartments with opposed supporting rails. Front and rear face plates are fastened to the ends of the side and divider extrusions to provide a rigid supporting frame, and a pair of opposed carriage extrusions are mounted on opposed supporting rails in one of the compartments for supporting an electrical package in that compartment, and a plurality of printed circuit boards are mounted on opposed supporting rails in the other compartment.

3,758,830

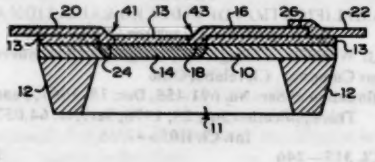
TRANSDUCER FORMED IN PERIPHERALLY SUPPORTED THIN SEMICONDUCTOR WEB

Weldon H. Jackson, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 10, 1972, Ser. No. 242,606

Int. Cl. H01*3/00, 5/00*

U.S. Cl. 317—234 R 7 Claims



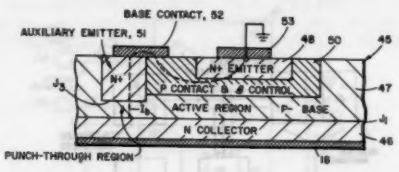
A thin web supported by a peripheral frame is formed from a single crystal of silicon, the web and frame being of opposite conductivity types. A lower resistivity region is diffused into the web, and the web is covered by an insulating layer having holes through which conductors are deposited in contact with each end of the diffused region. The resulting transducer can be used as a thermocouple or strain gage. For use as a thermocouple, one of the junctions between the diffused region and a conductor is situated near the center portion of the web. The diffused region comprises one leg of the thermocouple, and one of the conductors functions as the other leg. The frame acts as a heat sink relative to the center portion of the web, making the junction near the center portion a hot junction and the junction near the frame a cold junction. For use as a diaphragm type strain gage the diffused region is made to transverse most of the web. The frame serves as a mounting base that is integral with the strain gage. The resistance of the diffused region changes in proportion to the change of the dimensions of the diffused region that result from the application of a force normal to the plane of the web.

3,758,831

TRANSISTOR WITH IMPROVED BREAKDOWN MODE

Lowell E. Clark, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 7, 1971, Ser. No. 150,424
Int. Cl. H011 5/00, 9/00, 11/00
U.S. Cl. 317—235 R 5 Claims



There is disclosed a transistor with improved protection against excessive reverse biasing voltages. The improved protection is the result of providing a punch-through breakdown mode which is operative to the exclusion of an avalanche breakdown mode. In the improved transistor, the punch-through breakdown current is dissipated over a wide area such that little if any structural damage occurs. The provision of a punch-through breakdown to the exclusion of avalanche breakdown is accomplished by reducing the doping concentration in the base of the transistor under the emitter or by decreasing the distance between the collector-base junction and the emitter-base junction. There is further provided means for controlling the beta of the transistor as the distance between the above two junctions and the base doping concentration are reduced to provide for punch-through breakdown. Means are further provided for causing the punch-through breakdown to occur in a region either removed from the active area of the transistor or confined to a small portion of the active area of the transistor so that the punch-through mechanism does not interfere with the normal operation of the transistor. There is therefore separate control over the gain and the breakdown characteristics of the transistor. The punch-through current is made to flow to the emitter of the transistor whereby the punch-through breakdown current is dissipated over the entire emitter.

3,758,832

THYRISTOR WITH SHORT CIRCUITING RING

Karl Platzoder, Munchen, Germany, assignor to Siemens Aktiengesellschaft, Munich & Berlin, Germany

Filed Feb. 17, 1972, Ser. No. 227,159
Claims priority, application Germany, Feb. 19, 1971, P 21 08 111.8
Int. Cl. H011 5/00
U.S. Cl. 317—235 R 5 Claims

The known short-circuiting ring is situated entirely under the emitter electrode. As the electrode cannot be brought up to the edge of the semiconductor body because of the disturbances caused by finishing operations in the edge region, such as beveling, etching, etc., effective emitter area is lost. According to the invention, the short-circuiting ring is placed into the edge region and is connected to the electrode by parts of the base zone extending through cutouts in the emitter zone.

3,758,833

WOUND FILM CAPACITOR

Charles Calvin Rayburn, Glenview, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Feb. 21, 1973, Ser. No. 334,348
Int. Cl. H01g 1/14
U.S. Cl. 317—258 6 Claims

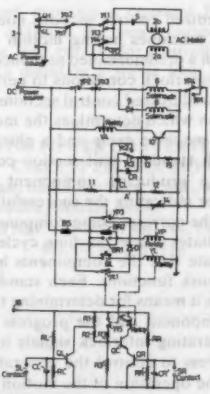
A film capacitor wound about its lead wires so that at least three layers of dielectric material are sandwiched between two layers of electrodes with transverse portions of the electrodes and three layers of dielectric being positioned between axial portions of two lead wires. One of the dielectric layers being a short relatively thick thermoplastic material and which, upon being heated, shrinks to lock the leads in firm engagement with the electrode layers. The relatively thick dielectric insert also providing protection against shorts at the center of the capacitor.

3,758,834

MAGNETIC TAPE MOTOR DRIVE CONTROL APPARATUS FOR MAGNETIC TAPE RECORDERS

Hideo Inoue, Tokyo, Japan, assignor to Teac Corporation, Tokyo, Japan

Filed Feb. 22, 1972, Ser. No. 228,111
Claims priority, application Japan, Feb. 23, 1971, 46/8539; Feb. 23, 1971, 46/8540; Feb. 27, 1971, 46/9822
Int. Cl. H02p 1/56
U.S. Cl. 318—6 6 Claims



A magnetic tape drive control apparatus for magnetic tape recorders adapted such that when an operation is effected for starting a magnetic tape from its standstill condition, a plunger solenoid for bringing a pinch roller into or out of rotary contact with a capstan is energized after the capstan has reached a constant-speed revolving condition and that when an operation is achieved for changing the direction of travel of the magnetic tape from left to right, the plunger solenoid is deenergized from the time of the tape direction changing operation until the capstan comes to turn from anticlockwise to clockwise at a constant speed. In the magnetic tape drive control apparatus means for changing the direction of travel of the magnetic tape is controlled with a relay circuit, the relay circuit is energized with an output from a switching transistor

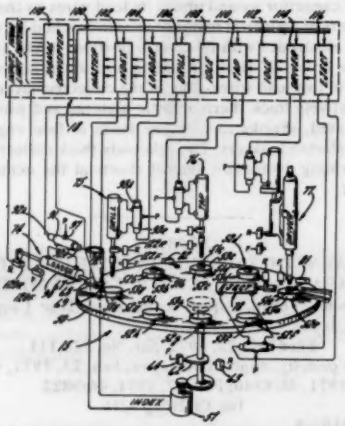
having a charging capacitor connected to the input side thereof and the charging capacitor is shorted by a normally open contact which is closed by a conductive foil attached to the magnetic tape.

3,758,835

STANDARDIZED CONTROL SECTIONS FOR MACHINE CONTROL SYSTEMS

Robert Frederick Rose, Rockford, Ill., assignor to Dixon Automatic Tool, Inc., Rockford, Ill.

Filed Nov. 1, 1971, Ser. No. 194,708
Int. Cl. G05b *19/42*
U.S. Cl. 318—162 20 Claims



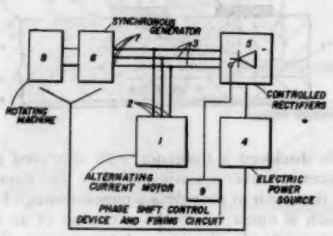
A set of standardized control sections interconnectable to form controls for machines having motion producing components operable in a predetermined sequence in the presence of predetermined interlock conditions to perform work functions. The set of standardized control sections includes a standard master section which determines the mode of operation and initiates each machine cycle and a plurality of standard unit sections, each standard unit section controlling a corresponding motion producing component and generating feedback signals for indicating the successful completion of a work function by the corresponding component; the standard master section initiates a new machine cycle when the feedback signals indicate that the components have successfully completed their work functions. Each standard unit section has associated with it means for determining the position of its corresponding component and the progress of the machine cycle and for generating interlock signals indicative of that position and progress to control the generation of the feedback signals and the operation of the motion producing components so that the components operate in the predetermined sequence and only in the presence of the predetermined interlock conditions; each standard unit section further includes auxiliary circuitry for connecting interlock signals to various standard unit sections. The set of standardized control sections additionally includes specialized standard sections for controlling or monitoring special machine components or functions. This set of standardized control sections is adaptable to be assembled into particularly reliable and compact machine controls that are extremely flexible to control large numbers of machines with little or no engineering design and easily maintained and easily altered if the motion producing components in the machine or the sequence of operations are changed.

3,758,836

ELECTRIC CONTROL SYSTEM FOR ALTERNATING CURRENT CIRCUIT

Fukuo Shibata, No. 3-8, 2-chome, Taidera, Akashi city, Hyogo-prefecture, Japan

Filed Feb. 3, 1972, Ser. No. 223,069
Int. Cl. H02p *1/28*
U.S. Cl. 318—197 10 Claims



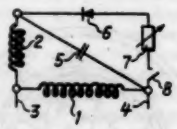
When an alternating current motor is supplied with electric current from an electric power source through an inverter or frequency converter which is composed of controlled rectifiers and whose output terminals of a synchronous generator driven by a rotary machine, the inverter or frequency converter can be A.C. line commutated or separately excited type and simple; and if an electric power is delivered between the said electric power source and the said set of synchronous generator driven by rotary machine not through the said controlled rectifiers, the efficiency of the whole system can be high.

3,758,837

CIRCUIT ARRANGEMENT FOR INFINITE SPEED REGULATION OF INDUCTION MOTORS

Siegfried Stauber; Nicolas Giger, and Klaus-Peter Schaeffer, all of Zurich, Switzerland, assignors to Firma E. Oswald, Zurich, Switzerland

Continuation-in-part of Ser. No. 40,192, May 25, 1970, abandoned. This application Apr. 14, 1972, Ser. No. 244,169
Claims priority, application Switzerland, May 28, 1969, 8085/69
Int. Cl. H02p *7/36*
U.S. Cl. 318—212 10 Claims



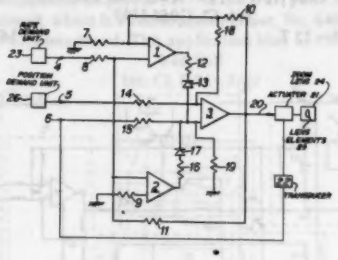
A circuit arrangement for the infinite speed regulation of an induction motor, said induction motor comprising a stator having a pair of windings. One of the windings of the stator is connected across the entire voltage supply source. The circuit arrangement comprises a control circuit branch embodying a capacitor bridging the pair of stator windings and a series circuit arrangement composed of a rectifier means and a resistance connected in parallel to at least one of the stator windings.

3,758,838

ELECTRONIC CIRCUIT

Keith Lawrence Wright, Leicester, England, assignor to The Rank Organization, London, England

Filed Dec. 22, 1971, Ser. No. 210,967
Int. Cl. G05b 11/18
U.S. Cl. 318—597 8 Claims



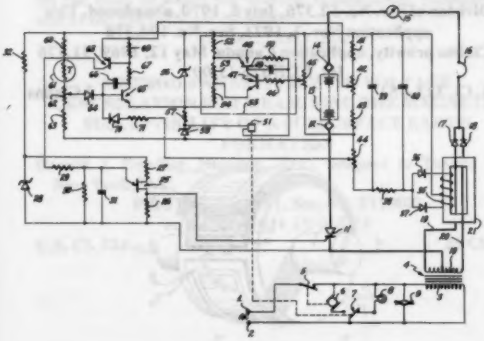
An electronic circuit which gives an output corresponding to a first input so long as that ouput is within limits set by a second input. When the output goes beyond these limits, a diode connected thereto is forward biased to establish a high loop gain feedback path holding the output constant.

3,758,839

CURRENT AND VOLTAGE CONTROLLED BATTERY CHARGER

Lewis A. Medlar, Oreland, Pa., assignor to Fox Products Company, Philadelphia, Pa.

Continuation of Ser. No. 768,684, Oct. 18, 1968. This application Oct. 4, 1971, Ser. No. 186,354
Int. Cl. H02j 7/04
U.S. Cl. 320—32 7 Claims



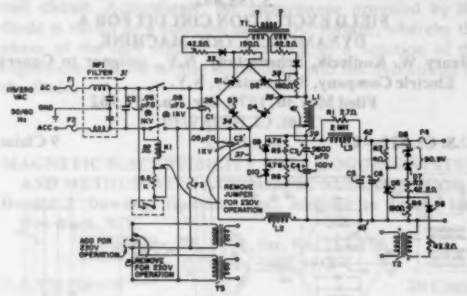
Battery charging method and apparatus for performing the method including a controlled rectifier and a trigger circuit in which a current transformer senses charging current, a voltage divider senses battery terminal voltage, and signals developed from both of the current and voltage sensing devices are used to control the operation of the trigger circuit. Current control is maintained during initial portion of the charging cycle with voltage control being substituted to diminish charging current after which a second current control maintains a closely controlled "trickle" charge level. The three control modes operate sequentially, all use the same common reference value and all control the same charging circuit valve. A second embodiment of the apparatus uses two controlled rectifiers, fired alternately.

3,758,840

POWER SUPPLY UTILIZING IMPROVED VOLTAGE REGULATION

Bernard M. Oliver, Los Altos Hills, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 15, 1972, Ser. No. 253,465
Int. Cl. H02m 7/20
U.S. Cl. 321—2 9 Claims



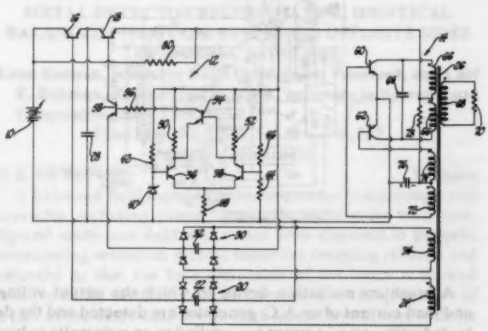
A high efficiency, AC-to-DC power supply is provided in which a preregulator circuit including a rectifier bridge is coupled to an AC supply input. Two switching rectifiers, one in each of two arms of the bridge, are controlled by a preregulator control circuit for regulating the turn on time of the bridge and thus the DC output level thereof. An inverter circuit is coupled to the output of the bridge for converting the DC output therefrom to an AC signal with a frequency substantially higher than the AC supply input and with an amplitude dependent on the DC output level of the bridge. The output of the inverter circuit is coupled by a transformer to a rectifier circuit for developing a DC output dependent on the amplitude of the AC signal from the inverter circuit. A flux sensing circuit is coupled to the transformer for developing a feedback control signal dependent on the transformer flux density. The preregulator control circuit includes means responsive to this feedback control signal for controlling the turn on time of the switching rectifiers to thereby control the DC level at the bridge output and maintain a constant flux density in the transformer. In addition, the power supply includes means responsive to the load current for controlling the gain of the feedback loop to maintain a stable loop with fast response time.

3,758,841

DC TO AC STATIC POWER CONVERTER WITH SHORT CIRCUIT PROTECTION

Frank J. Bourbeau, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 11, 1971, Ser. No. 197,862
Int. Cl. H02m 11/18
U.S. Cl. 321—14 2 Claims



DC voltage is coupled through an active voltage regulator to a voltage inverter to develop a precisely controlled AC output

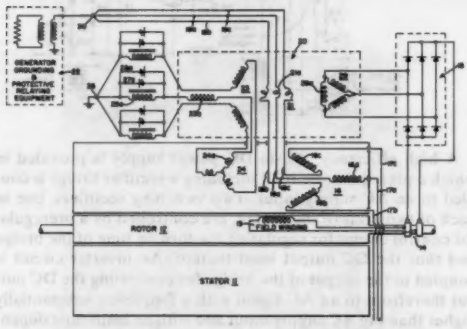
voltage. Feedback from the inverter output supplies requisite operating bias to the regulator only when the inverter develops an output voltage, thus rendering the regulator inoperative in the absence of an output voltage as on the occurrence of a short circuit at the load, thereby affording short circuit protection for the DC to AC converter.

3,758,842

FIELD EXCITATION CIRCUIT FOR A DYNAMOELECTRIC MACHINE

Henry W. Kudlacik, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 30, 1972, Ser. No. 257,762
Int. Cl. H02p 9/30
U.S. Cl. 322—25 **9 Claims**



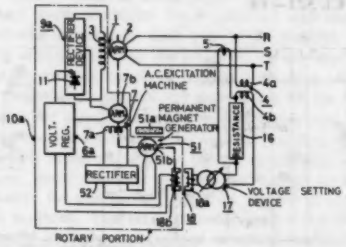
A field excitation circuit utilizing a three-winding excitation transformer in each phase to supply the excitation power of a dynamoelectric machine. The field excitation circuit includes a variable reactance in series with one winding of each three-winding excitation transformer. The variable reactance comprises a reactor with silicon-controlled rectifiers connected in an inverse parallel relationship. The power output of the excitation system is adjusted to the required value by varying the reactance.

3,758,843

BRUSHLESS EXCITATION DEVICE

Akira Ishizaki; Tatuya Hirasawa; Michiteru Nakamura, and Takeshi Kawade, all of Tokyo, Japan, assignors to Kabushiki Kaisha Meidensha, Tokyo, Japan

Filed June 27, 1972, Ser. No. 266,740
Claims priority, application Japan, Aug. 14, 1971, 46/72430
Int. Cl. H02p 9/30
U.S. Cl. 322—25 **6 Claims**



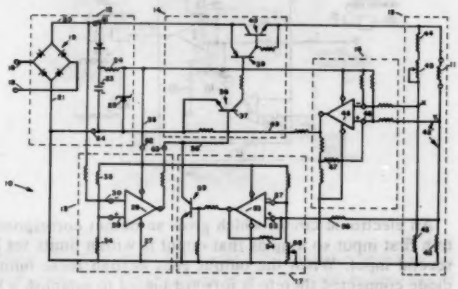
A brushless excitation device in which the output voltage and load current of an A.C. generator are detected and the detected voltage and current are applied to an automatic voltage regulator inserted and connected into a rotary portion of the generator by means of a rotary transformer, the field current of the generator being controlled by the output of the automatic voltage regulator.

3,758,844

CONTROL CIRCUIT FOR LOAD HAVING MEASUREABLE COEFFICIENT OF RESISTANCE

Robert J. Harkenrider, and John L. Moe, both of Winona, Minn., assignors to Waynco, Inc., Winona, Minn.

Filed Apr. 10, 1972, Ser. No. 242,694
Int. Cl. G05f 5/00
U.S. Cl. 323—22 T **14 Claims**



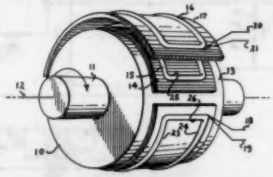
A control circuit wherein the load acts as its own transducer and wherein the circuit may be provided with means for zero switching and overload protection.

3,758,845

SIGNAL TRANSMITTING SYSTEM FOR ROTATING APPARATUS

John Stewart MacKelvie, Keene, Ontario, and Ganton Webster Clarke, Bailieboro, Ontario, both of Canada, assignors to Canadian General Electric Company Limited

Division of Ser. No. 52,376, July 6, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,378
Claims priority, application Canada, May 12, 1969, 51,176
Int. Cl. H02p 13/00
U.S. Cl. 323—51 **3 Claims**



This invention relates to a rotary transformer having both windings prewound in a flat rectangular skein for transmitting signals between the rotor and stator of a dynamoelectric machine. Suitably, one skein is wrapped flatwise around, and secured to, the rotor shaft with the second skein being fixedly secured to the stator in a concentric attitude relative to the first skein to permit rotary transformer action between the skeins. In a second disclosed embodiment both rectangular skeins are bent in an arcuate configuration about the rotor axis and are disposed in parallel planes at displaced locations along the axis of rotation. The two coils are designed such that they are coupled inductively at all times during rotation of the rotor.

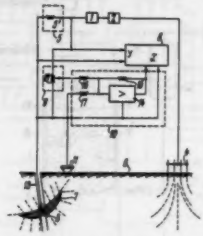
3,758,846
METHOD OF GEOPHYSICAL PROSPECTING OF ORE DEPOSITS

Jury Samuilovich Ryss, 2 Murinsky pr., 14, kv. 39; Tamara Mikhailovna Ovchinnikova, ul. Detskaya, 26, kv. 31; Jury Georgievich Gavrilov, Morskoi pr., 25, kv. 14; Dmitry Vyacheslavovich Voronin, 12 Linia, 17, kv. 1, and Vladimir Mikhailovich Panteleimonov, Nevsky pr., 11/2, kv. 19, all of Leningrad, U.S.S.R.

Continuation-in-part of Ser. No. 56,097, June 30, 1970, abandoned, which is a continuation of Ser. No. 648,285, June 23, 1967, abandoned. This application May 6, 1971, Ser. No. 140,868

Int. Cl. G01v *3/02*

U.S. Cl. 324—1 **2 Claims**



A geophysical method of prospecting for ore deposits which serves to determine the mineral composition, position and size of ore bodies in situ, as well as to correlate the intersections of the ore body by different boreholes and mine workings. The method is based on the selective excitation and registration of electrochemical reactions of certain minerals contained in the ore bodies. The successive excitation and registration of the electrochemical reactions is achieved by gradually varying the intensity of the current passed through an ore body, by simultaneously registering in the form of polarization curves the current intensity and the ore body potential relative to the enclosing rocks taking into account a drop of voltage in said rocks and by determining from said curves the potential values and the limit current intensity of the electrochemical reactions on the basis of which the mineral composition, position and size of the ore body are established.

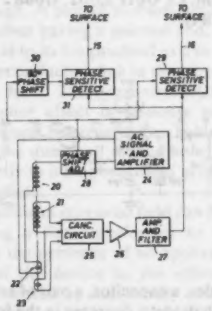
3,758,847
METHOD AND SYSTEM WITH VOLTAGE CANCELLATION FOR MEASURING THE MAGNETIC SUSCEPTIBILITY OF A SUBSURFACE EARTH FORMATION

Donald J. Dowling, Houston, Tex., assignor to Texaco Inc. New York, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,403

Int. Cl. G01v *3/10, 3/18*

U.S. Cl. 324—6 **25 Claims**



A magnetic susceptibility well logging system is provided with an improved null circuit for more precisely cancelling the exciter voltage component out of the receiver coil voltage sought to be measured. A monitor circuit and method is provided for detecting any phase shifts occurring in the null voltage during the logging operation, and a capacitance is varied in response to such monitoring to continually realign the phase of the null voltage. In particular, a DC voltage is generated as a function of the detected phase difference, and is applied to a semiconductor diode interconnected with the null circuit. Accordingly, the capacitance provided by the diode is varied as a function of the DC voltage, whereby the phase of the null voltage is regulated as a function of the capacitance characteristic introduced into the null circuit by the diode.

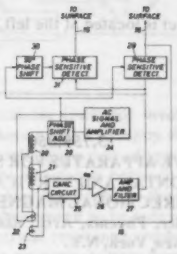
3,758,848
MAGNETIC SUSCEPTIBILITY WELL LOGGING SYSTEM AND METHOD WITH AUTOMATIC NULL CONTROL

Donald J. Dowling, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,276

Int. Cl. G01v *3/10, 3/18*

U.S. Cl. 324—6 **20 Claims**



An automatic null control circuit and method is employed in a magnetic susceptibility well loging system for regulating the null voltage employed to cancel the exciter voltage component of the receiver coil signal. Means and method are provided for determining the amplitude difference between the null voltage and the exciter voltage component, whereby the null voltage is multiplied by a factor which is functionally related to the difference. Since the null and receiver coil signals are both AC, the amplitude difference is also a phase-dependent function. Accordingly, it is an adjunct of the automatic null control system and method to also monitor and correct for phase difference between the null and receiver voltages.

3,758,849
METAL DETECTOR SYSTEM HAVING IDENTICAL BALANCED FIELD COIL SYSTEM ON OPPOSITE SIDES OF A DETECTION ZONE

Leon Susman, Sudbury; Hugh C. Maguire, Westford, and Carl E. Bohman, Sudbury, all of Mass., assignors to Sperry Rand Corporation, New York, N.Y.

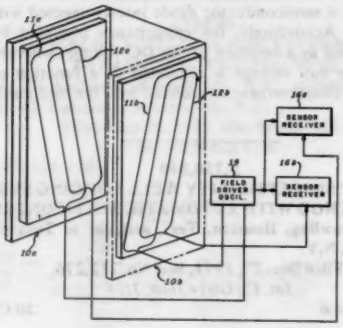
Filed Mar. 31, 1972, Ser. No. 240,222

Int. Cl. G01r *33/00*

U.S. Cl. 324—41 **5 Claims**

A balanced field metal detector apparatus comprising a coil assembly including planar, generally rectangular loop configured multi-turn field and sensor coils disposed in partially overlapping minimum mutual inductive coupling relation and oriented so that the long dimension of the loops is skewed relative to the vertical in use of the apparatus. Employment of a pair of the detectors, one on each side of a pathway, with the respective coil assemblies skewed relative to the vertical oppositely to one another, enables detection of a metal object in the pathway by one or both of the detectors irrespective of the

shape and orientation of the object, and by suitable processing of the sensor coil signals further enables determination of



whether the object is located at the left, center or right side of the pathway.

3,758,850

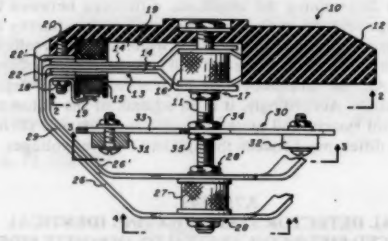
FLUX VALVE APPARATUS FOR SENSING TOTAL HORIZONTAL AND VERTICAL AMBIENT UNIDIRECTIONAL MAGNETIC FIELD

George W. Snyder, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 17, 1972, Ser. No. 235,584

Int. Cl. G01r *33/04*

U.S. Cl. 324—43 R **13 Claims**



A flux valve for sensing the total unidirectional ambient magnetic field in the vicinity of the valve comprising three equiangularly oriented magnetically permeable cores each including a pair of generally coextensive parallely extending elongated core members supported from a centrally disposed non-magnetic post, the cores being so constructed and arranged as to collect both the horizontal and vertical field components in the vicinity of the valve. An excitation coil magnetically coupled to the cores produces a circulating magnetic flux flowing simultaneously in all three cores in instantaneously opposite directions in the core members of each core while pickoff coils surrounding each core provide signals representative of the total unidirectional magnetic flux directed therethrough.

3,758,851

METHOD FOR DETECTING SMALL PARTICLES IN A TANK AND APPARATUS FOR CARRYING OUT SAID METHOD

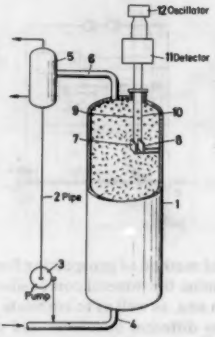
Tohru Yokoyama, Sagamihara; Tetsuo Kanda, Yokohama; Yudo Oshio, Kawasaki, and Akira Yoshimatsu, Yokosuka, all of Japan, assignors to Chiyoda Kako Kensetsu Kabushiki Kaisha, Yokohama, Japan

Filed Oct. 26, 1971, Ser. No. 192,156

Claims priority, application Japan, Oct. 27, 1970, 45/93936; Apr. 2, 1971, 46/19605

Int. Cl. G01c *27/24*

U.S. Cl. 324—61 QS **4 Claims**



The existence of small particles in a tank is detected by providing a pair of electrodes in the tank containing the particles to be detected, applying across the electrodes a frequency voltage high enough to occur dielectric dispersion in the particles, and measuring the changes in impedance caused by the existence of the small particles in the space between the electrodes which changes occur as a result of the changes in the real part of the dielectric constant of the particles and the imaginary part thereof resulting from dielectric dispersion. In a case where the size of the tank is large, the detection of the existence of the small particles is performed by forming a distribution resonant circuit using the distributed constants existing in the electrodes or the lead wires extending therefrom and detecting the change of the standing wave thereon.

3,758,852

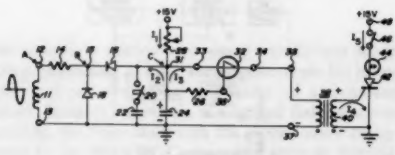
DECREASE IN FREQUENCY DETECTOR

John R. Nowell, Phoenix, and Luther L. Genuit, Scottsdale, both of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Mar. 2, 1972, Ser. No. 231,218

Int. Cl. G01r *23/02*; G08b *21/00*

U.S. Cl. 324—78 Q **7 Claims**

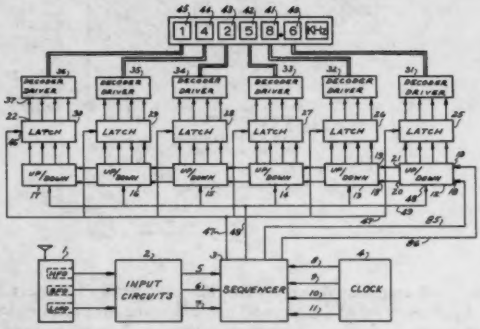


A pair of diodes, a capacitor, a pair of resistors and a silicon unilateral switch detect a decrease in the frequency of an A.C. power source below a threshold value. When the frequency decreases below the threshold value, the detector provides a warning signal.

3,758,853
METHOD OF AND APPARATUS FOR DETERMINING A TUNED FREQUENCY

William R. Dionne, Stevensville, Mich., and Philippe Blanc-Brude, Neuilly, France, assignors to Heath Company, St. Joseph, Mich.

Filed Mar. 20, 1972, Ser. No. 235,931
Int. Cl. G01r 23/02; H04b 1/06
U.S. Cl. 324—78 D 18 Claims



A method and apparatus for determining a tuned frequency of a radio by subtracting numerical counts of the frequencies of two oscillators from a numerical count of a high frequency oscillator (HFO). The several counts can also be added where the HFO has a frequency less than the tuned frequency.

3,758,854
SUPERCONDUCTIVE QUANTUM INTERFERENCE DEVICE HAVING TWO CAVITIES ISOLATED BY A SUPERCONDUCTIVE WEAK LINK

James E. Zimmerman, 404 Hapgood Ave., Boulder, Colo.

Filed Mar. 12, 1971, Ser. No. 123,686
Int. Cl. G01r 33/02
U.S. Cl. 324—43 R 12 Claims

A symmetric superconductive quantum interference device (SQUID) for use in magnetic field, or radio frequency energy, sensing systems. The symmetric SQUID comprises a solid niobium cylinder with a dumbbell shaped hole formed longitudinally therethrough. A pair of niobium screws, one having a flat end and the other having a pointed end, are positioned in the cylinder normal to its longitudinal axis so as to contact and form a weak superconductive link in the narrow portion of the dumbbell shaped hole. The symmetric SQUID exhibits the quantum interference effect in response to a difference in magnetic field strength between its two holes (i.e. the two circular portions of the dumbbell shaped hole). Thus the device will respond directly to a magnetic field gradient, but not to a uniform magnetic field.

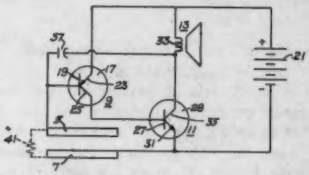
Response to a uniform magnetic field can be achieved by inductively coupling a flux transformer to one hole of the device, so that in the presence of an applied field, flux shifts from one hole of the device to the other. Magnetic field gradients can be sensed by inductively coupling a gradient-sensitive flux transformer to one hole of the SQUID. The gradient sensitive flux transformer may comprise a pair of superconductive loops each formed by a thin niobium sheet wrapped around a quartz tube.

In another embodiment of the invention, suitable for making sensitive temperature measurements, cerous magnesium nitrate (CMN) powder is inserted into one hole of the symmetric SQUID. The SQUID is then cooled to its superconductive state in the presence of a magnetic field and then the field is removed. A change in temperature causes the susceptance of the CMN powder to change, thereby shifting magnetic flux lines from one hole of the device to the other. This shifting of flux causes a change in the impedance of the SQUID. This change can be measured to ascertain the temperature change.

3,758,855
RESISTANCE CONTROLLABLE INDICATOR

Richard R. Meyer, 1925A Stuart St., Berkeley, Calif.

Filed July 9, 1970, Ser. No. 53,438
Int. Cl. G01r 27/02
U.S. Cl. 324—65 R 6 Claims

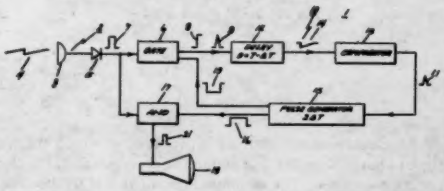


A resistance controllable indicator involving a frequency generating circuit wherein the frequency is a function of resistance, the circuit including a pair of spaced terminals normally defining infinite resistance between them and across which, the resistance may be altered on the occasion of and in response to certain phenomena to be indicated and which involve changes in electrical resistance conductivity. No on-off switch is necessary to preserve battery power during periods when not in use.

3,758,856
PULSE REPETITION FREQUENCY DETERMINATION SYSTEM

Kenneth N. Fromm, Cincinnati, Ohio, assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 3, 1959, Ser. No. 804,045
Int. Cl. G01r 23/02
U.S. Cl. 324—78 R 10 Claims

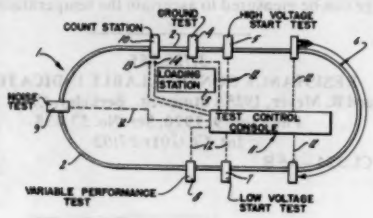


1. A system for determining the pulse repetition frequency of a relatively short train of pulses comprising: an input circuit adapted to receive said train of pulses: selectively adjustable delay means coupled to said input circuit for delaying said pulses a predetermined amount; selectively adjustable gate pulse generating means coupled to said delay means for generating gate pulses having a predetermined length responsive to the delayed pulses; and coincidence means coupled to said gate pulse generating means and to said input circuit for providing an output signal responsive to coincidence of an input pulse and a gate pulse whereby the delay of said delay means indicates the repetition frequency of said train of pulses.

3,758,857
AUTOMATIC TESTING APPARATUS

Sylvester Allan Simpson, Tipp City, and Howard W. Smith, West Carrollton, both of Ohio, assignors to A. D. Smith Corporation, Milwaukee, Wis.

Filed Dec. 23, 1971, Ser. No. 211,427
Int. Cl. G01r 31/00, 15/12
U.S. Cl. 324—158 MG 15 Claims

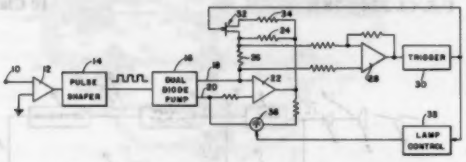


An automatic electric motor testing facility provides a plurality of carriers for carrying motors to a plurality of testing stations at which tests are performed. A memory arm having two levels of memory and an attached reflector assembly is connected to each carrier for selectively actuating each testing sequence through photoelectric transducers located at each testing station. Memory arm control means located at each test station selectively control the memory level of each memory arm in response to the test results. A tabulating punch provides a test record at each carrier while tabulating counters at the test control further record test results. The test control also provides a resistor bank having a plurality of resistive elements which are selectively code connected to one another, to a power source, and to an output circuit by a data card reader for providing a plurality of presettable electrical outputs for automatically controlling the testing of the electric motors.

3,758,858
ELECTRONIC TACHOMETER

David D. McCue, Hamburg, N.Y., assignor to Frank A. Roberts, Grand Island, N.Y.

Filed June 5, 1970, Ser. No. 43,779
Int. Cl. G01p 3/48
U.S. Cl. 324—166 14 Claims

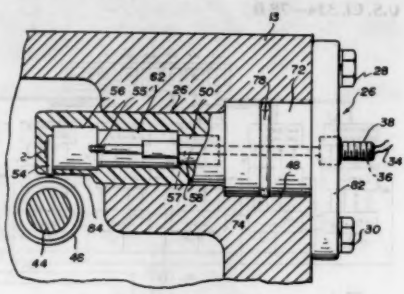


An electronic tachometer is provided in which the frequency of charge transfer to a capacitor is proportional to the RPM being measured. The d.c. level proportional to the frequency of charge transfer is applied to an amplifier having a feedback resistance and whose output drives a d.c. meter having a number of scales calibrated in RPM. When the meter needle reaches the end of one scale, the value of feedback resistance for the amplifier is suddenly decreased by the effect of a switching circuit responsive to current flowing in the feedback path, thereby to decrease the amplifier output suddenly so as to swing the meter needle to the low end of the next RPM range scale. An amplifier operating at substantially full open loop gain for low values of input signal and having clipped output for higher values of input signal is used to enable meaningful output from a magnetic transducer at low RPM of the device being measured. A dual diode pump having low average supply current requirements is also disclosed.

3,758,859
MAGNETIC TACHOMETER PICKUP

Algis Damijonaitis, Chicago, and Daryl D. Wiley, Elmhurst, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 29, 1971, Ser. No. 193,911
Int. Cl. G01p 3/48
U.S. Cl. 324—174 6 Claims

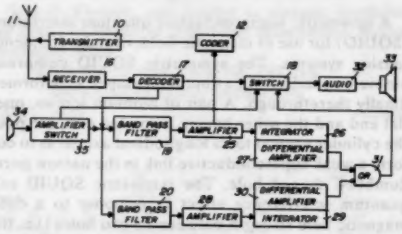


An encapsulated magnetic tachometer pickup for insertion in an aperture of a fuel or oil pump housing for detecting the rotational speed of a gear in the pump which is driven in proportion to engine RPM includes a pole piece adapter substantially perpendicular to and radially extending from the axis of the pole piece and connected thereto. The adapter is positioned to have the teeth of the pump gear move transversely across its sensing portion when the gear rotates. A magnet connected to the pole piece causes a magnetic field to be generated in the pole piece and pole piece adapter which changes as the result of the rotation of the gear across the sensing portion of the pole piece adapter. The changing flux induces a current in a coil mounted on the pole piece which in turn is connected to a signal translating network for indicating engine RPM.

3,758,860
SELECTIVE CALLING SQUELCH CIRCUIT FOR RECEIVING SYSTEMS

William V. Braun, Chicago; Daniel P. Brown, Elmhurst, and Albert J. Leitich, Chicago, all of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Jan. 17, 1972, Ser. No. 218,107
Int. Cl. H04b 7/38
U.S. Cl. 325—18 10 Claims



A receiver, decoder and switch connected to an (audio) output stage with a first band pass filter connected to the decoder and supplying a signal to an OR gate only when a message is properly decoded by the decoder and a second band pass filter connected to the decoder and supplying a signal to the OR gate only when white noise, or an improperly decoded signal, is present at the decoder. The presence of a signal from the first filter or the absence of a signal from the second filter enables the OR gate and activates the switch to allow the signal to pass from the decoder to the output stage.

3,758,861

SYSTEM FOR THE TRANSMISSION OF INFORMATION AT VERY LOW SIGNAL-TO-NOISE RATIOS

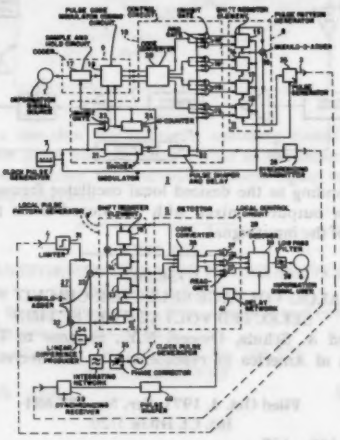
Frank De Jager; Leo Eduard Zegers, and Nicolaas Alphonsus Maria Verhoeckx, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 8, 1971, Ser. No. 160,749

Claims priority, application Netherlands, July 25, 1970, 7011049

Int. Cl. H04b *1/00*

U.S. Cl. 325—38 R 8 Claims



The invention relates to a transmission system comprising a transmitter and a receiver for the transmission of information signals, the transmitter including a modulator coupled to the information signal source and the receiver including a detector coupled to the information signal user.

3,758,862

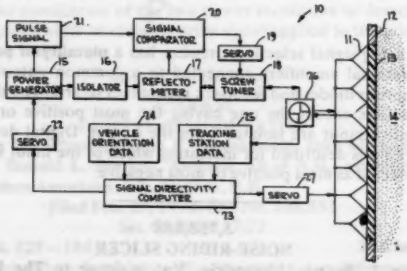
RF TRANSMISSION THROUGH A PLASMA

Frank L. Tevelow, Rockville, Md.; James C. Blackburn, Washington, D.C., and Frederick J. Tischer, Raleigh, N.C., assignors to The United States of America as represented by the Secretary of the Army

Filed Aug. 4, 1970, Ser. No. 64,915

Int. Cl. G01r *27/02*

U.S. Cl. 325—65 5 Claims



System for microwave transmission through a plasma. Radio communication through a layer of ionized gas is achieved by initially adjusting the impedance of the antenna system to match free space conditions, thereafter applying the radio signal to the antenna system, monitoring the standing wave ratio to detect a change in the ionization level of the ionized gas surrounding the antenna and thereafter adjusting the impedance of the antenna system to match that of the ionized gas. The ionization level is continuously monitored and the impedance continuously changed to match the constantly changing plasma conditions. Increased signal transmission is achieved by increasing the power of the signal up to a predetermined level and adjusting the impedance of the antenna system to match the changed ionized gas conditions which result from the increased input power. The increase in input power may be C.W. or may take the form of a series of pulses with subsequent monitoring of the changed ionization level delayed a predetermined time period after each pulse in order to monitor the effects of the increased pulsed power levels. Additional enhancement of signal transmission is achieved by adjusting the phased array of the antenna system in response to vehicle orientation data and remote tracking station signal data. The strength of the required power level may also be dependent upon this data.

3,758,863

DEVICE FOR EQUALIZING BINARY BIPOLAR SIGNALS

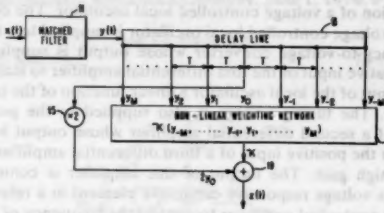
Gottfried J. Ungerboeck, Adliswil, Switzerland, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1971, Ser. No. 189,578

Claims priority, application Switzerland, Oct. 22, 1970, 15670/70

Int. Cl. H04b *1/16*

U.S. Cl. 325—321 8 Claims



The present invention is concerned with a circuit for equalizing binary bipolar signals, comprising transversal filter means for reducing distortions due to overlapping.

3,758,864

REMOTE-CONTROL TUNING SYSTEM

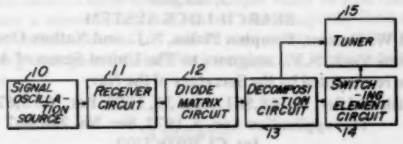
Toshiji Kanamaru, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 26, 1971, Ser. No. 202,326

Claims priority, application Japan, Nov. 28, 1970, 45/105095

Int. Cl. 334 *14*; H04b *1/06*

U.S. Cl. 325—392 5 Claims



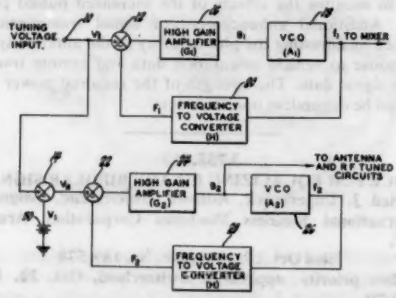
A remote-control tuning system comprising a varactor diode in which a DC voltage applied to the varactor diode is remote controlled to be tuned to a desired channel, whereby even if the desired channel is far from the preceding channel, an immediate switching is made to the desired channel.

3,758,865

BIAS VOLTAGE GENERATOR FOR THE VOLTAGE-RESPONSIVE TUNING ELEMENTS IN AN ELECTRONICALLY TUNED RADIO RECEIVER

James L. McKibben, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 18, 1972, Ser. No. 218,788
Int. Cl. H04b 1/16
U.S. Cl. 325—418 2 Claims



A circuit for tuning an electronically tuned radio receiver in which the tuning voltage for tuning the radio receiver is supplied to the positive input of a first differential amplifier having a high gain whose output is connected across a voltage responsive capacitive element for controlling the frequency of oscillation of a voltage controlled local oscillator. The output of this voltage controlled local oscillator is supplied to a linear frequency-to-voltage converter whose output is supplied to the negative input of the first differential amplifier to maintain the output of the local oscillator a linear function of the tuning voltage. The tuning voltage is also supplied to the positive input of a second differential amplifier whose output is supplied to the positive input of a third differential amplifier having a high gain. The output of this amplifier is connected across a voltage responsive capacitive element in a reference voltage controlled oscillator to control the frequency of oscillation thereof and across respective voltage responsive capacitive elements in the antenna and RF tuned circuits to control the tuned frequency thereof. The output of the reference voltage controlled oscillator is supplied to a linear frequency-to-voltage converter whose output is connected to the negative input of the third differential amplifier to maintain the frequency at which the reference voltage controlled oscillator, antenna and RF tuned circuits are tuned a linear function of the input voltage to the positive input of the third differential amplifier. A constant DC voltage is supplied to the negative input of the second differential amplifier to effect the tracking of the antenna and RF tuned circuits to the output of the voltage controlled local oscillator at a constant difference frequency equal to the IF frequency.

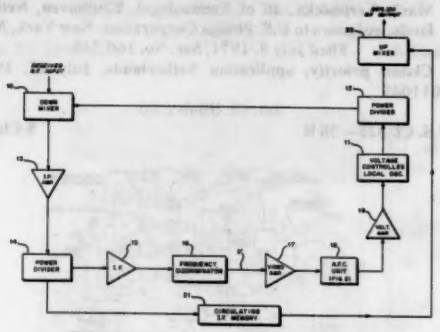
3,758,866

SEARCH-LOCK SYSTEM

Neil W. Hansen, Pompton Plains, N.J., and Nathan Orenstein, New York, N.Y., assignors to The United States of America as represented by the Secretary of the Navy

Division of Ser. No. 68,581, Aug. 31, 1970, Pat. No. 3,675,132.
This application Apr. 3, 1972, Ser. No. 240,467
Int. Cl. H03k 5/00
U.S. Cl. 328—127 4 Claims

A received RF signal is mixed with the output of a voltage-controlled local oscillator to provide an IF signal which is simultaneously passed to a frequency discriminator and a circulating memory. Control voltage for the oscillator is provided by an AFC unit which comprises an integrator receiving selected contant voltage inputs. During the search mode a search ramp is generated by the integrator. A flyback circuit causes the search voltage to repeat its traverse over a prescribed range. Bipolar video discriminator outputs above a predetermined threshold place the system in the lock mode and selectively gate two settable, constant voltage inputs to furnish a triangle wave integrator output centered on a voltage corresponding to the desired local oscillator frequency. The oscillator output is mixed with the stored IF to produce a replica of the input signal.

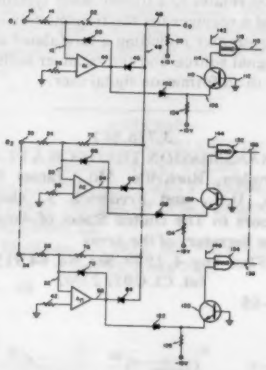


3,758,867

ANALOG VOLTAGE SELECTOR CIRCUIT WITH SELECTED VOLTAGE DETECTION

Raymond A. Schulz, Owego, N.Y., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 4, 1971, Ser. No. 188,681
Int. Cl. H03k 5/20
U.S. Cl. 328—137 1 Claim



Analog signal selecting circuitry has a plurality of parallel operational amplifiers connected to a common output, and comprises diodes and feedback resistances so arranged that all amplifiers except the one having the most positive or most negative input are isolated from the output. Digital detector circuitry is described for indicating which of the input signals is selected as most positive or most negative.

3,758,868

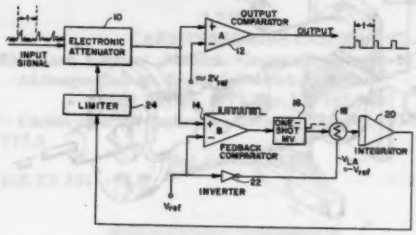
NOISE-RIDING SLICER

Bruce J. Brown, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 21, 1971, Ser. No. 210,412
Int. Cl. H03k 5/08
U.S. Cl. 328—165 3 Claims

A noise-slicing device for substantially eliminating the noise from an input signal consisting of signal pulses riding in a background of noise. The input signal is fed through an electronic attenuator into an output comparator which provides an output whenever its input-signal level is above a reference voltage, 2 V_{ref}. A feedback loop provides a control signal to

the attenuator to automatically control the attenuation level. The input to the feedback loop is the output of the attenuator. The loop comprises comparator means providing an output when the attenuator output signal is above its reference voltage, V_{ref}, a one-shot multivibrator, summing means having $-V_{ref}$ as one input and the M-V output as the other, an integrator and a limiter, the attenuator control signal being the output of the integrator.

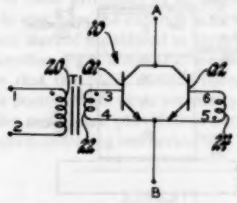


3,758,869

TRANSFORMER COUPLED POWER SWITCH DEMODULATOR

Ronald M. Wagner, Greendale, Wis., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 24, 1972, Ser. No. 246,973
Int. Cl. H03k 9/08
U.S. Cl. 329—102 3 Claims



A power switch demodulator comprising a pair of power transistors having their collector electrodes connected together and to a source of DC voltage and their emitter electrodes connected together and to a load. A transformer comprising a primary winding and two secondary windings controls the conduction of the two power transistors to demodulate a pulse width modulated drive signal applied to the primary of the transformer.

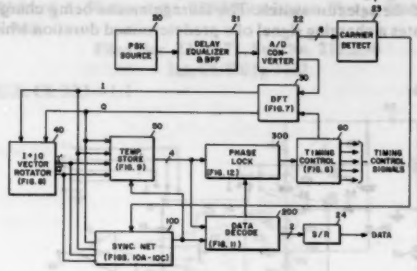
3,758,870

DIGITAL DEMODULATOR

Joseph W. Schmitt; James E. Mosakowski, both of Hudson, and Donald L. Starkey, Amherst, all of N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Feb. 23, 1972, Ser. No. 228,553
Int. Cl. H04l 27/22
U.S. Cl. 329—104 24 Claims

A digital data demodulator for detecting binary information which is encoded upon an amplitude modulated or a phase modulated carrier wave. A specific example is presented for both a straight four phase and a modified four phase differentially coherent phase shift keyed (DCPSK) signal. The exemplary four phase DCPSK demodulator employs a discrete Fourier transform filter which provides updated Fourier coefficient values I + jQ during each sample interval. The I and Q values are rotated by 45° to form I′ and Q′ values. A synchronization network, a phase lock network and a data decoding network respond to the I, Q, I′ and Q′ values to synchronize the digital data demodulator with a received DCPSK signal and to decode the binary information encoded therein.

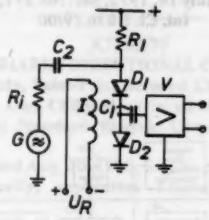


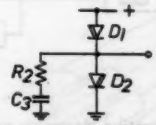
3,758,871

ARRANGEMENTS FOR CONTROLLING THE OUTPUT OF AMPLIFIERS

Johann Mattfeld, Kirchhausen, Germany, assignor to Licentia Patent - Verwaltungs - GmbH, Frankfurt am Main, Germany

Filed May 27, 1971, Ser. No. 147,536
Claims priority, application Germany, June 1, 1970, P 20 26 679.9
Int. Cl. H03g 3/30
U.S. Cl. 330—6 10 Claims





An arrangement for controlling the output of an amplifier in which an element determining the output value or gain factor comprises a semiconductor element with magnetic field dependent resistance and in which means are provided for producing a magnetic field which acts on the semiconductor element.

3,758,872

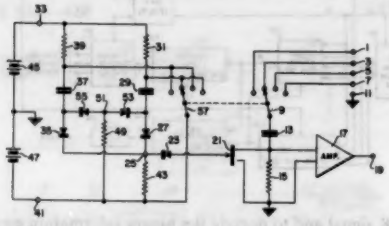
FAST RECOVERY CIRCUIT FOR AC AMPLIFIER

Paul A. Diddens, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 23, 1971, Ser. No. 183,037
Int. Cl. H03f 1/00
U.S. Cl. 330—185 1 Claim

A selector switch is operable to apply one of a plurality of input signals to a high impedance AC amplifier through a

coupling network. A switching means is coupled to the selector switch for alternately and concurrently discharging one and charging a second charge storage means for each operation of the selector switch. The storage means being charged generates a charging signal of a predetermined duration which



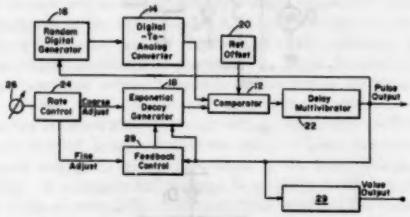
controls a switching device through a gating means. The switching device is operative in response to the gated charging signal and during the continuance thereof, to connect a relatively low impedance path across the input of the AC amplifier whereby to substantially reduce the response time of the AC amplifier.

3,758,873

RANDOM PULSE GENERATOR

Herbert E. Miller, Brookline, Mass., assignor to Epsco Incorporated, Westwood, Mass.

Filed July 14, 1972, Ser. No. 271,704
Int. Cl. H03b *29/00*
U.S. Cl. 331—78 **8 Claims**



A system for generating electronic pulses separated by intervals which vary according to a predetermined probability distribution, typically exponential. The predetermined probability distribution is realized through the interaction of two other separately controlled functions. A first probability function statistically governs the selection of a first value and a second time varying function establishes the pulse time interval by relation to the selected first value.

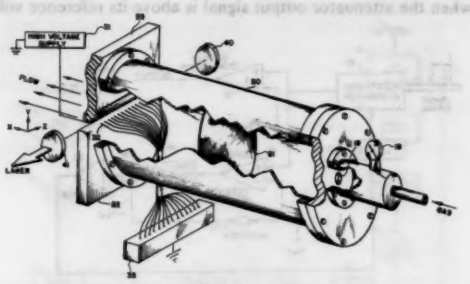
3,758,874

CORONA DISCHARGE LASER

Ethan D. Hoag, Boston, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Sept. 17, 1971, Ser. No. 181,432
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **1 Claim**

A method of and apparatus for producing laser action in and transverse to a flowing gas over a wide range of flow and pressure conditions by an electrical discharge orthogonal to



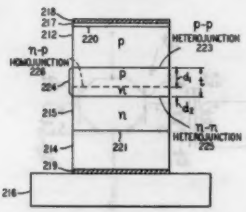
both the flow and lasing direction which is stabilized by electrode segmentation and ballasting.

3,758,875

DOUBLE HETEROSTRUCTURE JUNCTION LASERS

Izuo Hayashi, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of Ser. No. 787,459, Dec. 27, 1968, abandoned, which is a continuation-in-part of Ser. No. 766,902, Oct. 11, 1968, abandoned. This application May 1, 1970, Ser. No. 33,705
Int. Cl. H01s *3/18*
U.S. Cl. 331—94.5 **9 Claims**



A light emitting heterostructure diode includes a multilayered structure having a common conductivity type heterojunction and a p-n junction separated therefrom by a distance less than the diffusion length of minority carriers, thereby defining an intermediate region bounded by said junctions.

In a single heterostructure (SH) diode there is one such heterojunction separating narrow and wide band gap regions of the same conductivity type and the p-n junction is a p-n homojunction formed in one instance by the diffusion of impurities into the narrow band gap region. When provided with an appropriate resonator, a confinement effect produced by an energy step (at the heterojunction) in the conduction band permits the SH diode to lase at higher temperatures and lower thresholds than heretofore possible, radiative electron-hole recombination occurring between the conduction and valence bands.

In a double heterostructure (DH) the diode is provided with a second heterojunction positioned on the side of the p-n junction remote from the other heterojunction, or positioned coincident with the p-n junction, thereby defining an intermediate region between a pair of heterojunctions. When provided with an appropriate resonator the DH diode exhibits lower thresholds at higher temperatures than even the aforementioned SH diode.

In both diodes additional improvement in the threshold occurs if the diode is provided with deep impurity levels of deep band tails.

Without a resonator, both the SH and DH diodes function as electroluminescent diodes with radiation being emitted

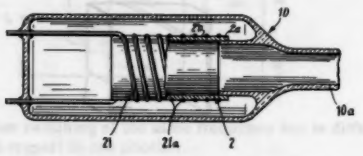
from the intermediate region through the wide band gap region, thereby advantageously resulting in lower absorption losses and higher efficiency. Dome-like configurations of the wide band gap region of this diode are also disclosed.

3,758,876

CARBON DIOXIDE LASER

Ekkehard Klement, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed July 26, 1971, Ser. No. 165,960
Claims priority, application Germany, Aug. 4, 1970, P 20 38 777.3
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 11 Claims



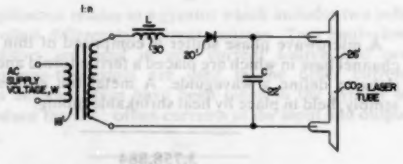
A carbon dioxide laser having an oxygen-providing agent incorporated therein comprised of a nickel oxide member arranged in the laser tube in association with a heater so that the nickel oxide reaches temperatures of about 400° to 500° C. during operation. A preferred form of nickel oxide member comprises an oxidized surface layer on a nickel metal base positioned in close proximity to an electrode and outside the discharge. In one form the cathode is formed of nickel and the outer surface thereof is oxidized to form the oxygen-providing agent. In another form a metallic mesh-like nickel screen is oxidized so that the outer surface thereof comprises nickel oxide and is positioned in close proximity to the cathode. Auxiliary heating means are provided in certain embodiments to attain a desired operating temperature.

3,758,877

POWER SUPPLY FOR CARBON DIOXIDE LASERS

James C. Fletcher, Administrator of the National Aeronautics And Space Administration, with respect to an invention of, and Gerhard Schiffner, Hinterbruehl, Austria

Filed May 9, 1972, Ser. No. 251,621
Int. Cl. H01s 3/09, 3/22
U.S. Cl. 331—94.5 10 Claims



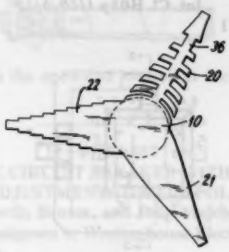
In a power supply for a CO_2 laser tube including an A.C. source, a rectifier and a filter, an inductance connected in front of the rectifier provides a non-dissapative positive resistance effect for cancelling the negative differential resistance exhibited by the tube at frequencies below about 2kHz. The inductance replaces the ballast resistors usually used for the same purposes and provides a resultant increase in system efficiency. The frequency of the A.C. source is preferably in excess of 25 kHz thus taking advantage of the low amplitude and frequency fluctuations at high frequencies and enabling the use of a low value filter capacitor.

3,758,878

MICRO-STRIP AND STRIPLINE JUNCTION CIRCULATORS

Richard A. Wainwright, 9704 Kensington Pkwy., Kensington, Md.

Filed Dec. 23, 1971, Ser. No. 211,238
Int. Cl. H01p 1/32
U.S. Cl. 333—1.1 4 Claims



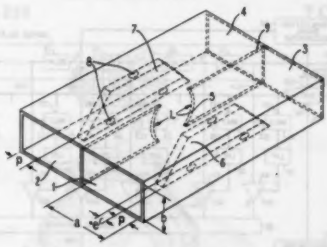
A junction circulator having (one) microstrip or (two) stripline discs, or other geometries of ferrimagnetic material or in combination with non-ferrimagnetic insulating materials, spaced between a conducting ungrounded center plate and (one) microstrip or (two) stripline conducting ground plates. Three or more center conductors are connected to the center or ungrounded plate at points having generally equal angles in degrees apart. A magnetic biasing field is applied parallel to the Z axis of the ferrite discs. The bandwidth of the circulator is increased by having each center conductor tapered so as to increase in width as each center conductor approaches the center plate.

3,758,879

VARIABLE DIRECTIONAL COUPLER

Daniel E. Beguin, Saint-Prix; Bernard Chiron, Nanterre, and Michel P. G. Cuo, Chilly-Mazarin, all of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 284,821
Claims priority, application France, Aug. 31, 1971, 7131466
Int. Cl. H01p 5/12, 5/14
U.S. Cl. 333—10 5 Claims



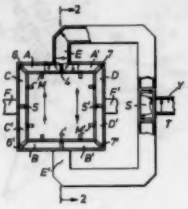
This invention relates to a microwave directional coupler, having an easily adjustable coupling coefficient. In a short-slot hybrid junction comprising two adjacent waveguide sections having a common sidewall with a coupling slot, two dielectric slabs having their planes parallel to the common wall plane are disposed, in front of the slot, respectively in the two waveguide sections and symmetrically with respect to the common wall. Variations of the coupling coefficient are obtained by moving symmetrically the two slabs in a direction perpendicular to the common wall. This solution preserves the decoupling and matching characteristics of the coupler.

3,758,880

WAVEGUIDE MODE COUPLER FOR SEPARATING WAVES OF USEFUL MODE FROM WAVES OF HIGHER MODE

Gunter Morz, Ludwigsburg, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H.

Filed July 17, 1972, Ser. No. 272,138
Claims priority, application Germany, July 16, 1971, P 21 35 611.6; July 16, 1971, HGM 71 27 358.0
Int. Cl. H01p 1/16, 5/12
U.S. Cl. 333—11 6 Claims



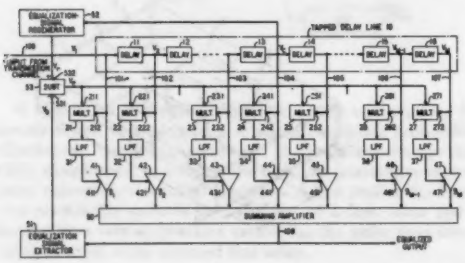
A mode coupler useful in ranging systems for evaluating higher waveguide wave modes resulting from aperture deviations of an antenna exciter for determining angular deviation in the azimuth plane as well as in the elevation plane. Waves of the useful mode are separated from waves of a higher mode. A first waveguide section for propagating all evaluatable wave modes is adapted to be coupled to an antenna. A second waveguide section for propagating exclusively the useful wave mode is connected in series with the first waveguide section. A gap is provided between the first waveguide section and the second waveguide section and is provided with a plurality of apertures for the higher wave modes in the direction of propagation of the waves. New modes corresponding to the higher wave modes are substantially excited by the useful mode containing the ranging signal.

3,758,881

TRANSVERSAL EQUALIZER CONTROLLED BY PILOT TONES

William David Rummler, Mendham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Oct. 13, 1972, Ser. No. 297,497
Int. Cl. H04b 3/10
U.S. Cl. 333—16 7 Claims



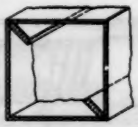
A transversal equalizer is controlled by harmonically related pilot tones transmitted along with the message signals. Two of the tones near the center of the transmission band differ in frequency by an amount equal to the fundamental frequency of the pilot tones. In the equalizer the two special tones are extracted from the center tap of the transversal equalizer and are used to generate amplitude and phase duplicates of the original pilot tones. At the output of the equalizer the distorted original pilot tones are separated from the message signal and subtracted from the duplicate tones, thereby creating an error signal. The control signals for the gains at each tap of the delay line of the transversal equalizer are then developed by cross-correlating the error signal with the tap voltages.

3,758,882

POLARIZATION CONVERTER FOR MICROWAVES

Gunter Morz, Ludwigsburg, Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Nov. 11, 1971, Ser. No. 197,897
Claims priority, application Germany, Nov. 11, 1970, P 20 55 443.2
Int. Cl. H01p 1/16
U.S. Cl. 333—21 A 18 Claims



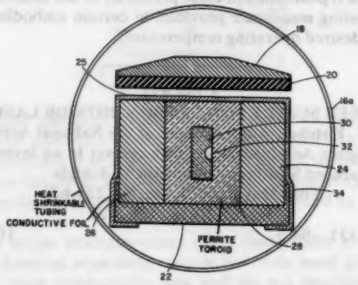
A microwave polarization converter for converting a linearly polarized wave into an elliptically, and particularly a circularly, polarized wave, the converter including a waveguide which propagates only two mutually orthogonal waves and coupling means disposed in the waveguide for coupling such orthogonal waves.

3,758,883

COPPER FOIL FERRITE PHASE SHIFTER

Richard M. Cox, and Evan Savatgy, both of Baltimore, Md., assignors to The Bendix Corporation, Baltimore, Md.

Filed May 15, 1972, Ser. No. 253,372
Int. Cl. H01p 1/32
U.S. Cl. 333—24.1 3 Claims



A microwave phase shifter is comprised of thin aluminum channel base in which are placed a ferrite toroid and dielectric slabs to define a waveguide. A metal foil encloses the assembly, held in place by heat shrinkable tubing.

3,758,884

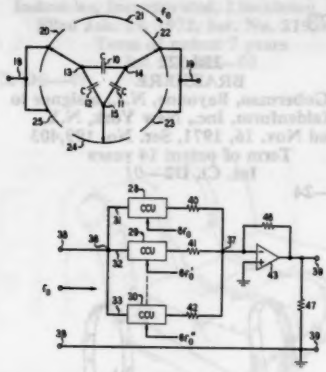
BAND-REJECTION FILTER USING PARALLEL-CONNECTED COMMUTATING CAPACITOR UNITS

Lawrence George Bahler, Berkely Heights, and Joseph Henry Condon, Summit, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed July 24, 1972, Ser. No. 274,488
Int. Cl. H03h 7/10, 7/16
U.S. Cl. 333—70 A 13 Claims

Plural commutating capacitor, 2-terminal, impedance units are included in parallel-connected branch circuits which are, in turn, connected in series in a signal path to suppress a predetermined signal frequency as well as certain harmonic frequency-rejection bands that would otherwise be present if a

single commutating capacitor unit were employed. The plural units are essentially the same in structure and are driven for



commutation switching at the same frequency but in different phases with respect to one another.

3,758,885

GYRATOR COMPRISING VOLTAGE-CONTROLLED DIFFERENTIAL CURRENT SOURCES

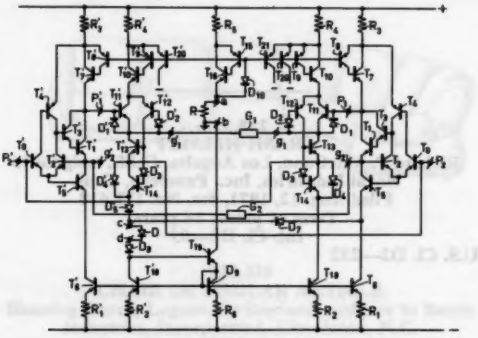
Johannes Otto Voorman, and Arnoldus Biesheuvel, both of Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Filed Oct. 5, 1972, Ser. No. 295,208

Claims priority, application Netherlands, Oct. 9, 1971, 7113893

Int. Cl. H03h 7/44, 11/00

U.S. Cl. 333—80 T **3 Claims**



The application relates to a gyrator which includes two voltage-controlled differential current sources. Two equivalent npn-transistors are used in one current source and two equivalent npn-transistors are used in the other current source. In addition steps have been taken in the gyrator to greatly reduce the D.C. offset currents at the input and output terminals.

3,758,886

VERSATILE IN LINE WAVEGUIDE TO COAX TRANSISTION

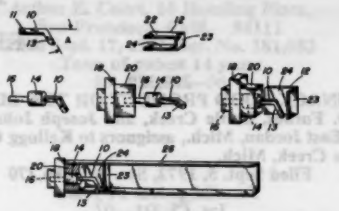
Norman R. Landry, and Joseph P. Grabowski, both of Willingboro, N.J., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 1, 1972, Ser. No. 302,694

Int. Cl. H01p 5/08, 1/00

U.S. Cl. 333—97 R **9 Claims**

A microwave transition to interface between a coaxial cable and a waveguide comprises a hook-shaped exciter and a U-shaped dielectric loading transformer. The exciter is an extension of the inner conductor of the coaxial line. It enters the waveguide along its longitudinal axis and bends toward the top or bottom wall of the waveguide. The transformer surrounds



the exciter with the open end located at the waveguide-coax interface.

3,758,887

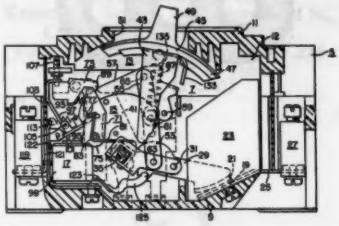
MULTI-POLE CIRCUIT BREAKER WITH SINGLE TRIP ADJUSTMENT FOR ALL POLES

James P. Ellsworth, Beaver, and John Majcher, Beaver Falls, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1968, Ser. No. 703,283

Int. Cl. H01h 71/74

U.S. Cl. 335—8 **12 Claims**



A multi-pole circuit breaker comprising a separate trip device for each pole and a single trip adjusting means operable to simultaneously vary the tripping characteristics of all of the poles.

3,758,888

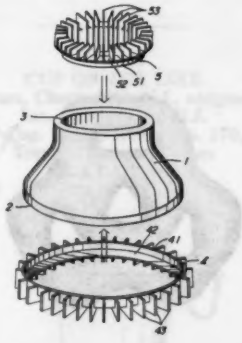
TOROIDAL DEFLECTION YOKE

Tokuzo Kadota, Kyoto, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Mar. 7, 1972, Ser. No. 232,443

Int. Cl. H01f 7/00

U.S. Cl. 335—210 **7 Claims**

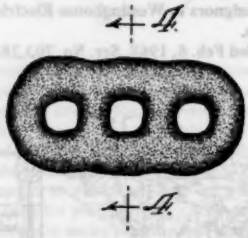


A toroidal deflection yoke comprising a toroidal core, a pair of guide rings mounted on the toroidal core, each guide ring having a plurality of coil isolating partitions formed thereon, and horizontal and vertical deflection coils disposed between these partitions in such a manner that they are isolated from each other.

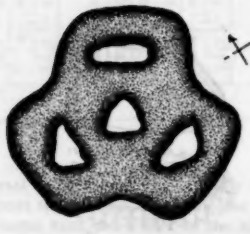
DESIGNS

SEPTEMBER 11, 1973

228,320
SNACK FOOD PRODUCT OR THE LIKE
John D. Forbes, Battle Creek, and Joseph John Thompson, East Jordan, Mich., assignors to Kellogg Company, Battle Creek, Mich.
Filed Sept. 5, 1972, Ser. No. 286,270
Term of patent 14 years
Int. Cl. D1—*01*
U.S. Cl. D1—1



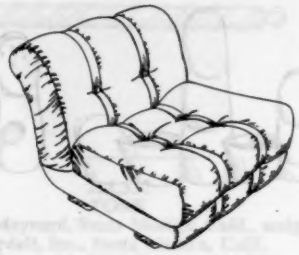
228,321
SNACK FOOD PRODUCT OR THE LIKE
Richard M. Vondel and Clarence H. Soderlund, Battle Creek Township, Mich., and Ralph A. Maldari, Brooklyn, N.N.Y., assignors to Kellogg Company, Battle Creek, Mich.
Filed Sept. 18, 1972, Ser. No. 289,596
Term of patent 14 years
Int. Cl. D1—*01*
U.S. Cl. D1—1



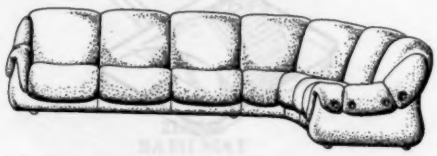
228,322
BRASSIERE
Sam Guberman, Bayonne, N.J., assignor to Maidenform, Inc., New York, N.Y.
Filed Nov. 16, 1971, Ser. No. 199,403
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—24

228,323
CRASH HELMET
Richard P. MacCoon, Los Angeles, Calif., assignor to Royal Industries, Inc., Pasadena, Calif.
Filed Aug. 12, 1971, Ser. No. 171,418
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—232

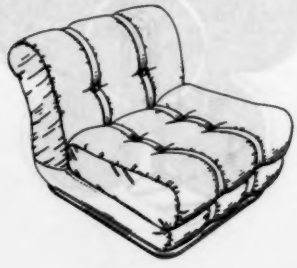
228,324
CHAIR OR SIMILAR ARTICLE
Henning Korch, Lugano, Switzerland, assignor to Burris Industries, Incorporated, Lincolnton, N.C.
Filed Jan. 19, 1972, Ser. No. 219,196
Term of patent 7 years
Int. Cl. D6—*02*
U.S. Cl. D6—47



228,325
SOFA OR SIMILAR ARTICLE
Henning Korch, Lugano, Switzerland, assignor to Burris Industries, Incorporated, Lincolnton, N.C.
Filed Jan. 19, 1972, Ser. No. 219,198
Term of patent 7 years
Int. Cl. D6—*02*
U.S. Cl. D6—63



228,326
CHAIR OR SIMILAR ARTICLE
Henning Korch, Lugano, Switzerland, assignor to Burris Industries, Incorporated, Lincolnton, N.C.
Filed Jan. 19, 1972, Ser. No. 219,194
Term of patent 7 years
Int. Cl. D6—*02*
U.S. Cl. D6—66



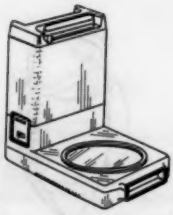
228,327
DISPLAY STAND
Arthur E. Court, 10 Hotaling Place, San Francisco, Calif. 94111
Filed Sept. 17, 1971, Ser. No. 181,653
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—85

228,328
COMBINED DRINKING MUG AND STAND THEREFOR
Kenneth E. Schley, 2481 Northland St., Cuyahoga Falls, Ohio 44221
Filed Feb. 19, 1971, Ser. No. 117,226
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—5

228,329
CUP OR THE LIKE
Karl Wiedemann, Cherry Hill, N.J., assignor to Melitta, Inc., Cherry Hill, N.J.
Filed Aug. 10, 1971, Ser. No. 170,670
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—9

228,330
DRINKING RECEPTACLE
Elvin M. Bright, Granada Hills, Calif., assignor to Incolay Studios, Incorporated
Filed July 27, 1971, Ser. No. 166,658
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—15

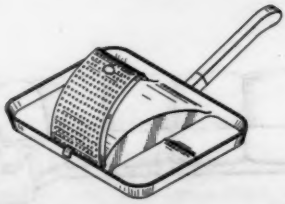
228,331
WATER METERING APPARATUS FOR A COFFEE MAKER
Hans Joachim Hugo Julkenbeck, Wijnjeterp, Netherlands, assignor to United States Philips Corporation
Filed Dec. 9, 1971, Ser. No. 206,593
Claims priority, application Switzerland June 1971
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—41



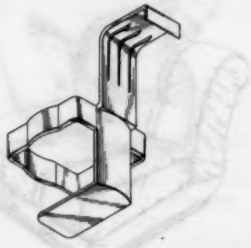
228,332
METERING DISPENSING CONTAINER FOR GRANULAR MATERIAL
Jack V. Croyle, Woonsocket, and James B. Sweet, Barrington, R.I., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Jan. 3, 1972, Ser. No. 215,245
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—52

228,333
COMBINED CONDIMENT STAND AND SHAKERS
Ute Berger, 75 Wandersmannstrasse Weisbaden-Erbenheim, Germany
Filed Apr. 15, 1971, Ser. No. 134,527
Claims priority, application Germany Oct. 15, 1970
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—56

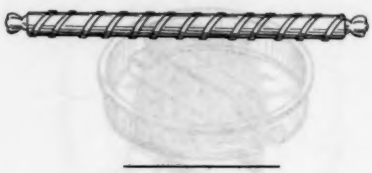
228,334
FRYING PAN
John O. Kotila, 1728 Pendrell St., Vancouver, British Columbia, Canada
Filed Sept. 20, 1971, Ser. No. 182,309
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—95



228,335
BEVERAGE CONTAINER HOLDER
William E. Jackson, 3933 Jan Ave., Tyler, Tex. 75701
Filed Sept. 16, 1971, Ser. No. 181,281
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—70



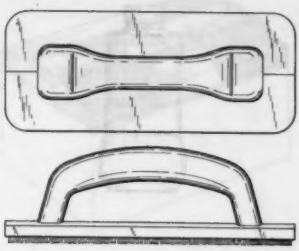
228,336
ROLLING PIN OR THE LIKE
Hugh N. Pace, 3516 Poole Road, Raleigh, N.C. 27610
Filed Jan. 11, 1971, Ser. No. 105,767
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—99



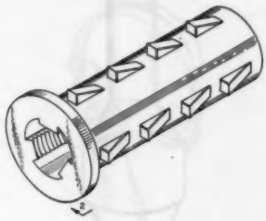
228,337
FORK
Edmund M. Maynard, Santa Monica, Calif., assignor to Gaydell, Inc., Santa Monica, Calif.
Filed June 23, 1972, Ser. No. 265,757
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—102

228,338
BATH MAT
Robert A. O'Neil and Michael C. Wilson, Wheaton, Ill., assignors to Pretty Products, Inc., Coshocton, Ohio
Filed Feb. 14, 1972, Ser. No. 226,390
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D7—210

228,339
PAD HOLDING DEVICE
Ronald O. Zemke, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 28, 1971, Ser. No. 194,090
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—178



228,340
THREADED ANCHORED INSERT
Fredrick J. Jennings, Fullerton, Calif., assignor to Like Manufacturing Corporation, Santa Fe Springs, Calif.
Filed Nov. 18, 1971, Ser. No. 200,272
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—272

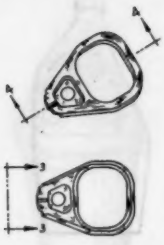


228,341
BOTTLE
Peter L. Schweizer, Liberty Center, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 8, 1972, Ser. No. 233,014
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—39

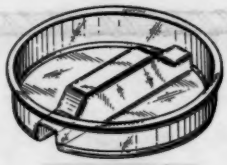
228,342
BOTTLE
Edward J. Kretz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed July 31, 1972, Ser. No. 276,430
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—100

228,343
BOTTLE
Edward J. Kretz, 6090 Saddlewood Drive, Toledo, Ohio 43613
Filed Mar. 8, 1972, Ser. No. 233,016
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—127

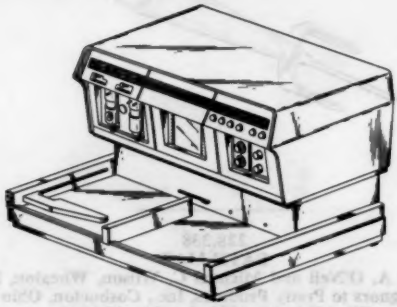
228,344
PULL TAB
Herman R. Markert, Hartsville, S.C., assignor to Sonoco Products Company, Hartsville, S.C.
Filed Apr. 6, 1972, Ser. No. 241,890
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—256



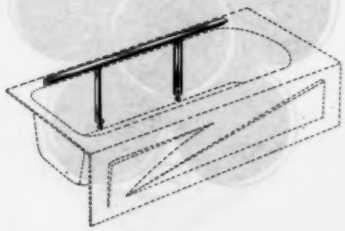
228,345
CONTAINER CLOSURE
Eugene Kleinman, Montvale, N.J., assignor to Kayser-Roth Corporation, New York, N.Y.
Filed July 31, 1972, Ser. No. 276,861
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—264



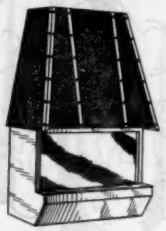
228,346
AUTOMATIC PIPETTING AND ANALYSIS UNIT
Alfred M. Blumenfeld, Melrose Park, Pa., assignor to Micromedic Systems, Inc., Philadelphia, Pa.
Filed Sept. 20, 1971, Ser. No. 182,304
Term of patent 14 years
Int. Cl. D16—*02*
U.S. Cl. D16—2 C



228,347
SUPPORT FOR BATH
Normand Bolduc, 11048 Ethier St., Apt. 1, Montreal North, Quebec, Canada
Filed Feb. 17, 1972, Ser. No. 227,313
Term of patent 14 years
Int. Cl. D8—*08*; D23—*02*
U.S. Cl. D23—70



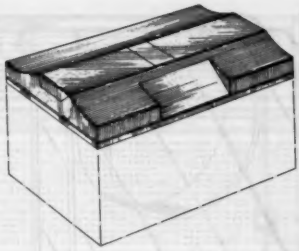
228,348
FIREPLACE OR SIMILAR ARTICLE
Ray Derringer, Port Edwards, and Thomas F. Billmeyer, Wisconsin Rapids, Wis., assignors to Preway Inc.
Filed Dec. 29, 1971, Ser. No. 213,777
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94



228,349
ELECTRONIC CALCULATING MACHINE
Yoshihisa Oie, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed Apr. 5, 1972, Ser. No. 233,847
Claims priority, application Japan Sept. 14, 1971
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C

228,350
ELECTRONIC CALCULATING MACHINE
Yoshisaburo Yoshida and Yoshihisa Ohie, Osaka, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed July 19, 1972, Ser. No. 273,024
Claims priority, application Japan Feb. 23, 1972
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5 C

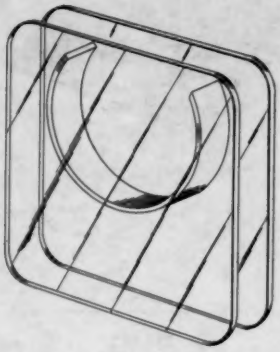
228,351
BATTERY COVER
Jerome Louis Smentek, Milwaukee, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.
Filed Dec. 28, 1971, Ser. No. 213,234
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D26—6



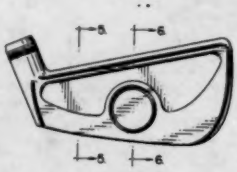
228,352
HEADPHONE
Tadashi Itagaki, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Nov. 22, 1971, Ser. No. 201,254
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D26—14 H

228,353
CHRISTMAS ORNAMENT
James Russell Price, Esmond, and Richard S. Maiella, Riverside, R.I., assignors to Gorham, a division of Textron Inc., Providence, R.I.
Filed Feb. 4, 1972, Ser. No. 223,808
Term of patent 14 years
Int. Cl. D11—*05*
U.S. Cl. D29—1 B

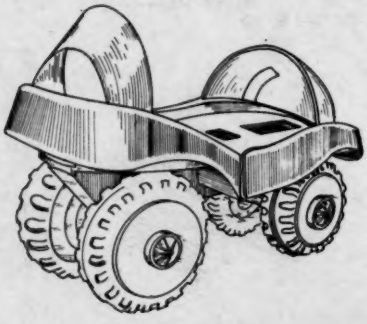
228,354
VASE
Mark A. Young, Washington, D.C.
(4212 Howard Ave., Kensington, Md. 20975)
Filed Mar. 15, 1973, Ser. No. 341,523
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D29—28 R



228,355
GOLF CLUB HEAD
Toney Gerald Penna, 17 Ocean Drive, Jupiter, Fla. 33458
Filed Jan. 19, 1972, Ser. No. 219,199
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 GH

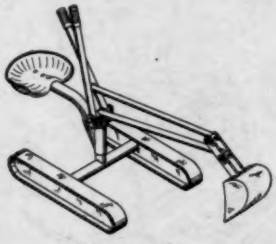


228,356
ROLLER SKATE
Beverly W. Taylor, Hermann, Mo., assignor to Steven Manufacturing Co., Hermann, Mo.
Filed Sept. 27, 1971, Ser. No. 184,333
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15 M

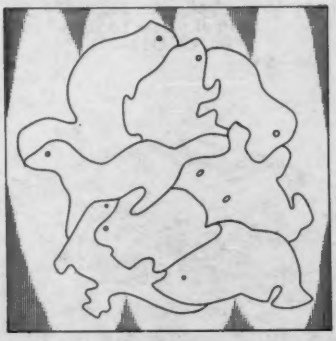


228,357
JIGSAW PUZZLE
Ann S. Trageser, Valparaiso, Ind., assignor to Voltek, Inc., Burlington, Mass.
Filed Sept. 15, 1971, Ser. No. 180,947
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 M

228,358
PLAYGROUND BACKHOE APPARATUS
Robert S. Wormser and Ronald L. Ewers, Hillsdale, Mich., asssignors to Game Time, Inc., Hillsdale, Mich.
Filed Mar. 3, 1972, Ser. No. 231,792
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—15 T

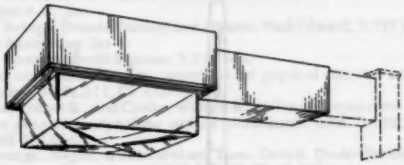


228,359
JIGSAW PUZZLE
Margaret Jones, Methuen, Mass., assignor to Voltec, Inc., Burlington, Mass.
Filed June 1, 1972, Ser. No. 258,937
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 M

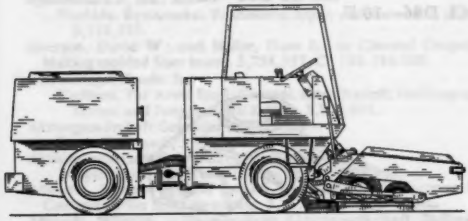


228,360
HANGABLE TERRARIUM
Richard B. Sunshine, 7118 Greenville Ave., Dallas, Tex. 75231
Filed June 7, 1972, Ser. No. 260,712
Term of patent 14 years
Int. Cl. D11—*02*; D30—*02*
U.S. Cl. D35—3 A

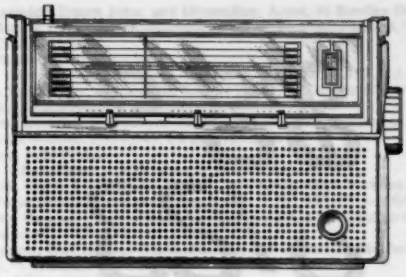
228,361
LUMINAIRE
Robert T. Burns, Rocky River, and Alfred K. Goetz, Cleveland, Ohio, assignors to Westinghouse Electric Corporation
Filed Apr. 20, 1972, Ser. No. 246,097
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



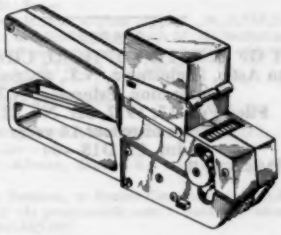
228,362
SCRUBBING MACHINE
Keith N. Krier, Neil F. Brown, and Steven J. A. Waldhauser, Minneapolis, and John N. Polivka, Hopkins, Minn., assignors to Tennant Company, Minneapolis, Minn.
Filed Apr. 18, 1972, Ser. No. 245,293
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D49—9.1



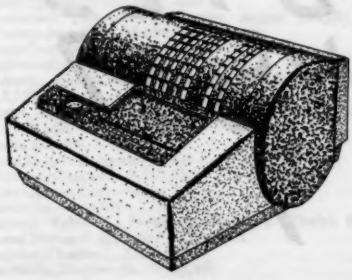
228,363
MULTI-BAND PORTABLE RADIO
Cornelius W. Christie, Jr., Fulton, N.Y., assignor to General Electric Company
Filed Dec. 2, 1971, Ser. No. 204,410
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4 B



228,364
LABEL PRINTING TOOL
James H. Lee, Walnut Creek, Calif., assignor to Dymo Industries, Inc., Emeryville, Calif.
Filed June 11, 1970, Ser. No. 23,443
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D64—10

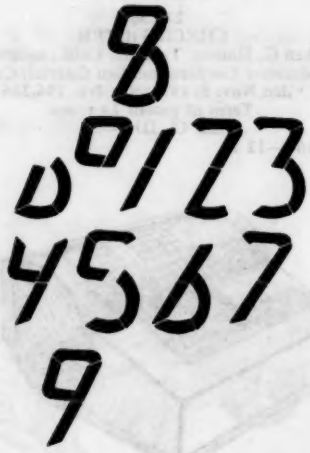


228,365
CHECKWRITER
Stephen G. Hauser, Tarzana, Calif., assignor to Addmaster Corporation, San Gabriel, Calif.
Filed Nov. 5, 1971, Ser. No. 196,266
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D64—11 B

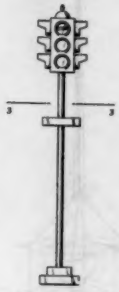


228,366
FONT OF ELECTRO-OPTICAL CHARACTERS
Brian Astle, Hightstown, N.J., assignor to Optel Corporation, Princeton, N.J.
Filed Feb. 17, 1972, Ser. No. 227,334
Term of patent 14 years
Int. Cl. D18—*04*
U.S. Cl. D64—12 B

228,367
FONT OF ELECTRO-OPTICAL CHARACTERS
Brian Astle, Hightstown, N.J., assignor to Optel Corporation, Princeton, N.J.
Filed Feb. 17, 1972, Ser. No. 227,335
Term of patent 14 years
Int. Cl. D18—*04*
U.S. Cl. D64—12 B

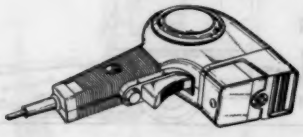


228,368
WARNING LIGHT FOR SHOPLIFTERS IN STORES OR SIMILAR ARTICLE
Robert J. Slavsky, Lathrup Village, Mich., assignor to Shaw & Slavsky, Inc., Detroit, Mich.
Filed Oct. 12, 1971, Ser. No. 188,644
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D72—1 E



228,369
WRITING IMPLEMENT
Roland Longarzo, Valley Stream, N.Y., assignor to Consolidated Foods Corporation, Chicago, Ill.
Filed Oct. 5, 1971, Ser. No. 186,596
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D74—17 B

228,370
HAIR DRYER
Yoritaka Ikejima, Osaka, Japan, assignor to Matsushita Electric Works, Ltd., Osaka, Japan
Filed May 18, 1972, Ser. No. 254,821
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10 F



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 11TH DAY OF SEPTEMBER, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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Abou-Zied, Aly: *See—*
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Adams, Gary V., to Thiokol Chemical Corporation. Release mechanism for flare parachute. 3,758,055, Cl. 244-149.000.

Adams, John Howard, to Chevron Research Company. Normally solid crystalline polypropylene stabilized by aromatic esters of anthranilic acid. 3,758,437, Cl. 260-45.85a.

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Richman, Edward B., 3,758,330.
Weber, Ralph A., 3,757,688.

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Adler, Kochs, AG: *See—*
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Advanced Automated Equipment Ltd.: *See—*
Baljet, Daniel J.; Sodderland, George A.; and Hania, John D. H., 3,757,932.

Ady, Irvin B.: *See—*
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Aiken, Vivian C.: *See—*
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Air Dry Corporation of America: *See—*
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Aircraft Mechanics, Inc.: *See—*
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Aisin Seiki Kabushiki Kaisha: *See—*
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Ajinomoto Co., Inc.: *See—*
Yoshida, Ryonosuke; Yoshimura, Ippei; and Takehara, Masahiro, 3,758,525.

Akerson, David W.; and Miller, Duer L., to Conwed Corporation. Making molded fiber board. 3,758,357, Cl. 156-196.000.

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Anello, Louis G.; and Sweeney, Richard F., 3,758,543.
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Allinger, Arlen W. Mini-cold plate portable cooler. 3,757,852, Cl. 165-47.000.

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Olson, Donald R.; and Waddell, Eugene P., 3,758,041.

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Reitsema, Robert H.; and Allphin, Nylen L., Jr., 3,758,548.

Allston, Kenneth J.; and Rothschild, Leigh M. Multi-channel cassette system for a sound recording and reproduction with interlocked stacked cassettes. 3,758,730, Cl. 179-100.20z.

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Altman, Daniel E.: *See—*
Geller, Myer; Altman, Daniel E.; and Barstow, Glidden J., 3,758,805.

Alvarez, Francisco Sanchez, to Syntex Corporation. 2-Hydroxy-2(6'-methoxynophth-2'-yl) propionitrile and 5' halo derivatives thereof. 3,758,544, Cl. 260-465.00f.

Amana Refrigeration, Inc.: *See—*
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Ambrose, John Louis: *See—*
Berry, George William; Gregory, Milton Wesley; and Ambrose, John Louis, 3,757,829.

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American Optical Corporation: *See—*
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American Totalisator Company, Inc.: *See*—
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American Velcro, Inc., mesne: *See*—
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AMF Incorporated: *See*—
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AMP Incorporated: *See*—
Fritz, William Baird; Sanders, Neil Harrison; Reyner, Emerson Marshall, II; and Fox Harry Alvin, Jr., 3,757,415.

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Whigham, Dale M.; and Amsterdam, Michael F., 3,758,348.

Anacker, Wilhelm; and Matisoo, Jori, to International Business Machines Corporation. Superconductive circuitry using Josephson tunneling devices. 3,758,795, Cl. 307-306.000.

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Anderson, Clarence L., to Magnamatrix Corporation. Semi-automatic bookbinder. 3,757,736, Cl. 118-59.000.

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Anderson, Robert K., to Medtronic, Inc. Power supply and voltage double output circuitry for implantable electro-medical apparatus. 3,757,795, Cl. 128-419.00p.

Anderson, Victor C.; and Horn, Ronald C., to United States of America, Navy. Magnetically-actuated fluid control valve. 3,758,071, Cl. 251-139.000.

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Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See*—
Zeidler, Adolf; Kiefer, Hans; Fischer, Adolf; Hoffmann, Hans-Dieter; and Merger, Franz, 3,758,477.

Baezold, Karl. Mechanical adjusting arrangement. 3,757,906, Cl. 188-196.00d.

Bagwell, Richard S., Jr.: *See*—
Doyle, Edward J.; and Bagwell, Richard S., Jr., 3,758,002.

Bahler, Lawrence George; and Condon, Joseph Henry, to Bell Telephone Laboratories, Incorporated. Band-rejection filter using parallel-connected commutating capacitor units. 3,758,884, Cl. 333-70.00a.

Bahne, William L., Jr.: *See*—
Doyle, Michael D.; and Bahne, William L., Jr., 3,758,127.

Bahr, Alfred, to Messerschmitt-Bolkow-Blohm Gesellschaft. Ion engine. 3,757,518, Cl. 60-202.000.

Bailey, Joseph; Heath, Bushey; Knott, Edward B.; and Marr, Peter A., to Eastman Kodak Company. Silver halide emulsions containing sensitizing dyes derived from a 1H-pyrazolo-[3,2-c]-S-triazole. 3,758,309, Cl. 96-136.000.

Bailey, Keith A.; and Marlow, Jerry R., to General Motors Corporation. Flow controlled control system for motors. 3,757,644, Cl. 91-411.00r.

Bailly, Yves G.: *See*—
Fauran, Claude P.; Eberle, Jeannine A.; Raynaud, Guy M.; and Bailly, Yves G., 3,758,459.

Baitsholts, Albert D.; Jackobs, Nancy E.; and Timrots, Imants, to Eastman Kodak Company. Template for applying samples to a thin layer chromatographic sheet. 3,757,952, Cl. 210-198.00g.

Bajder, Herbert; and Locher, Otto, to Heimo Geratabau-Gesellschaft mit-beschrankter. Spraying apparatus. 3,758,036, Cl. 239-102.000.

Baker Perkins Inc.: *See*—
Gendron, Roger J.; and Skarin, Carl Richard, 3,757,926.
Luther, Gerald J., 3,757,925.

Baker, Terry M.; Huthsing, Henry W.; Kieding, Robert B.; and Reddan, Edwin D., to Rolair Systems, Inc. Automatic conveyor system for buildings and the like. 3,757,931, Cl. 198-219.000.

Bales, Joseph H.: *See*—
Buck, Gordon H.; Bales, Joseph H.; and Prodger, Brian S., 3,757,459.

Baljet, Daniel J.; Sodderland, George A.; and Hania, John D. H., to Advanced Automated Equipment Ltd. Spring system for vibratory parts feeders. 3,757,932, Cl. 198-220.0bc.

Ball Brothers Research Corporation: *See*—
James, Donald N.; and Nightingale, Peter A., 3,758,716.

Ball, Russell C., Jr.; and Liu, John K., to Philadelphia Gear Corporation. Load equalizing clutch controls. 3,757,912, Cl. 192-.020.

Ballestrazzi, Ariz; Tassi, Lamberto; and Tosarelli, Gianni. Device for welding and cutting films of plastics materials in apparatus for packing goods. 3,758,366, Cl. 156-515.000.

Banta, Charles C., to United States of America, Army. Container for packaging a plurality of explosive units so as to prevent sympathetic detonations. 3,757,933, Cl. 206-3.000.

Barecki, Chester J.; Van Ryn, Arthur L.; and Hozeski, Kenneth W., to American Seating Company. Desk and tray structure. 3,758,182, Cl. 312-194.000.

Barlow, Gordon A., to Glass, Marvin & Associates. Doll. 3,757,465, Cl. 46-135.00r.

Barnstead, John W., to Vernco Corporation. Flexible fan. 3,758,231, Cl. 416-132.000.

Barracudaverken AB: *See*—
Larsson, Erik Johan, 3,757,526.

Barrett, Edward E.: *See*—
Olney, Nathaniel M.; Hurkmans, Antoon M.; Barrett, Edward E.; and Leff, Martin J., 3,758,016.

Barrett, Richard C., to Allied Chemical Corporation. Cross-linking agents for paper binders and paper coated therewith. 3,758,324, Cl. 106-146.000.

Barsky, George. Direct interesterification of glycerides of fatty acids and products thereof. 3,758,530, Cl. 260-410.700.

Barstow, Glidden J.: *See*—
Geller, Myer; Altman, Daniel E.; and Barstow, Glidden J., 3,758,805.

Barton, Charles E.: *See*—
Crocker, Charles W.; and Barton, Charles E., 3,757,580.

Barton, Frederic D., to Fre-Bar Inc. Cooling system container. 3,757,984, Cl. 220-27.000.

Bartsch, Friedrich F.; and Feigin, Robert, to Sybron Corporation. Cation dyes and long chain alkyl quaternary ammonium salt applied to anionically modified nylon in a jute backed carpet. 3,758,269, Cl. 8-21.00b.

BASF Wyandotte Corporation: *See*—
Crowe, Gordon Appling, 3,757,735.

Baskin, John Y.; Bender, Miles D.; and Daugherty, Robert D., to Syncom Incorporated. Magnetic tape cleaner. 3,757,374, Cl. 15-93.00r.

Bastenhof, Dirk, to Societe d'Etudes de Machines Thermiques. Internal-combustion engine intake-valve provided with a deflector plate. 3,757,757, Cl. 123-188.0va.

Bateman, Douglas Alfred; Burrell, Geoffrey John; and Killick, Donald Edward, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the. Atmospheric visibility measuring apparatus. 3758,211, Cl. 356-103.000.

Bateman, William C. Wheel balancer. 3,757,588, Cl. 73-483.000.

Battelle Development Corporation, The: *See*—
Brumm, Douglas B., 3,758,186.

Battista, Orlando A., to Avicon, Inc., mesne. Method of forming structures from microcrystalline. 3,758,660, Cl. 214-202.000.

Baum, James A.; and Stearns, Charles F., to United Aircraft Corporation. Negative hydraulic rate device. 3,757,639, Cl. 91-47.000.

Bauman, Jack. Ventilator for an anesthesia gas machine. 3,757,776, Cl. 128-145.600.

Baustin, Michel M. Means for recording medicinal dosages. 3,757,441, Cl. 40-2.00r.

Bax, Pieter C.; Henderson, Margaret S.; and Rammler, David H., to Syntex Corporation. Beta-D-riboheptofuranosyl nucleosides. 3,758,456, Cl. 260-211.50r.

Baxter Laboratories, Inc.: *See*—
Leonard, Ronald James, 3,757,955.

Bayer Aktiengesellschaft: *See*—
Aya, Masahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Morishima, Norihisa, 3,758,481.
Buysch, Hans-Josef; Krimm, Heinrich; and Margotte, Dieter, 3,758,597.
Eimers, Erich; Rudolph, Hans; and Kloker, Werner, 3,758,556.
Findeisen, Kurt; and Warner, Kuno, 3,758,570.
Hoffman, Hellmut; Hammann, Ingelborg; and Stendel, Koeln Wilhelm, 3,758,487.
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Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; and Kume, Toyohiko, 3,758,647.
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Logemann, Heino; and Bruckmann, Paul-Gunther, 3,758,642.
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Schroeder, Josef; and Schellhammer, Carl-Wolfgang, 3,758,460.
Stolzer, Claus; Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, 3,758,644.
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Winkelmann, Hans Dieter; Rosendahl, Friedrich Karl; Oertel, Harald; and Rinke, Odenthal-Globusch Heinrich, 3,758,553.

Bayerische Berg-, Hutten- und Salzwerke Aktiengesellschaft: *See*—
Willner, Horst, 3,757,608.

BDH Pharmaceuticals Limited: *See*—
Burgess, Colin M.; Feather, Peter; and Goatly, Philip H., 3,758,521.

Beachy, Dale K.: *See*—
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Bean, Edwin T., Jr.: *See*—
Trbovich, Nicholas D.; Meyer, William H.; Bean, Edwin T., Jr.; and Robinson, William P., 3,758,113.

Beattie, Harold R.: *See*—
Bush, Roy L.; and Beattie, Harold R., 3,757,387.

Beaudet, Camille Alphonse. Process for the preparation of beta-naphthoquinone semicarbazone. 3,758,520, Cl. 260-396.00n.

Beavers, Leo E.; Lau, Philip T. S.; and Salminen, Ilmari F., to Eastman Kodak Company. Silver halide emulsion containing para-fluoro phenols. 3,758,308, Cl. 96-100.000.

Beck, William R.: *See*—
Parkhurst, Robert H.; Beck, William R.; and Bungo, Edward M., 3,757,824.

Beckman Instruments, Inc.: *See*—
Strickler, Allen, 3,758,395.

Beckner, Carol R.; and Kasper, Klaus B., to Schoeller Technical Papers, Inc. Opaque papers and photographic papers prepared therefrom. 3,758,376, Cl. 162-162.000.

Becton, Dickinson and Company: *See*—
Gravlee, Leland C., 3,758,006.

Bedue, Jean Robert: *See*—
Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, 3,757,522.

Beecham Group Limited: *See*—
Melton, Timothy; and Thorne, David Edward, 3,758,574.

Beguin, Daniel E.; Chiron, Bernard; and Cuo, Michel P. G., to International Standard Electric Corporation. Variable directional coupler. 3,758,879, Cl. 333-10.000.

Behnke, Wilbert B.: *See*—
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Beisch, Hans R., to Sargent Industries of Michigan, Inc. Method of manufacture of vehicle wheel trim. 3,757,400, Cl. 29-159.00a.

Beisch, Hans R.; and Trute, William C., to Sargent Industries of Michigan, Inc. Method of manufacturing vehicle wheel trim. 3,757,401, Cl. 29-159.00a.

Bell & Howell Company: *See*—
Thomsen, Jack W.; Nupnau, Arthur E.; Kim, Raymond W. H.; and Cherniavskyj, Jaroslav, 3,758,047.

Bell Canada-Northern Electric Research Limited: *See*—
Main, Henry Allan, 3,758,721.

Bell Fibre Products Corporation: *See*—
Black, Richard A., 3,758,018.

Bell Telephone Laboratories, Incorporated: *See*—
Bahler, Lawrence George; and Condon, Joseph Henry, 3,758,884.
Bonyhard, Peter Istvan, 3,758,722.
Dinn, Neil Francis, 3,758,720.
Kapers, William John, Jr., 3,758,825.
Mayashi, Izuo, 3,758,875.
Rummler, William David, 3,758,881.

Bellinger, Spencer Lawrence, to General Robotics, Inc. Ammunition tracer system. 3,757,632, Cl. 89-1.00r.

Bellot, Jean; and Hugo, Michel, to Societe des Acieries de Manori-Pompey. Refractory iron-base alloy resistant to high temperatures and to recarburization. 3,758,294, Cl. 75-122.000.

Bender, Martin. Variable weight exerciser. 3,758,109, Cl. 272-57.00r.

Bender, Miles D.: *See*—
Baskin, John Y.; Bender, Miles D.; and Daugherty, Robert D., 3,757,374.

Bendix Corporation, The: *See*—
Braunlich, Peter F., 3,758,778.
Cox, Richard M.; and Savatgy, Evan, 3,758,883.
O'Brien, James E.; and Schmidt, Emerson E., 3,757,569.
Phinney, Earl M., 3,757,697.
Wieg, Heinrich J., 3,757,423.

Bennett, Clarence Leonard, Jr.; De Lorenzo, Joseph D.; and Durling, Hubert R., Jr., to Sperry Rand Corporation. Static magnetic field metal detector. 3,757,501, Cl. 56-10.200.

Bennett Pump Incorporated: *See*—
Mankin, Paul A.; Mitchell, Thomas O.; and Zanoni, Paul, 3,757,581.

Bennett, Ronald, to Fluid Chemical Company, Inc. Unitary aerosol mounting cap expander. 3,757,717, Cl. 113-18.00e.

Benson, Robert D. Windshield cleaning apparatus. 3,757,379, Cl. 15-250.00y.

Bentz, Francis: *See*—
Kunzel, Hans-Egon; Bentz, Francis; and Nischk, Gunther, 3,758,434.

Berg, Arthur Henry, to Cambridge Filter Corporation. Apparatus for collecting filtered airborne. 3,757,496, Cl. 55-293.000.

Berg, Bror Hugo Olof, to Molnlycke AB. Apparatus for applying adhesive tape, particularly self-adhesive tape, to a moving support surface in the form of a continuous web, a sheet or an article. 3,758,367, Cl. 156-519.000.

Berger, Dieter; Hahnlein, Eberhard; and Seeliger, Horst, to Feldmuhle Anlagen- und Produktionsgesellschaft mit beschrankter Haftung. Method and apparatus for manufacturing non-woven fabrics. 3,758,378, Cl. 162-216.000.

Berghahn, Walter G., to Bristol-Myers Company. Safety closure-bottle assembly. 3,757,979, Cl. 215-9.000.

Bergman, Sylvester; and Pews, Richard Garth, to Dow Chemical Company, The. Rendering hydrophobic fibers fire retardant and dye receptive. 3,758,335, Cl. 117-136.000.

Berk, Edward J., to Goodman Equipment Corporation. Apparatus for preheating scrap material or the like. 3,758,267, Cl. 432-134.000.

Berkeley Pump Company: *See*—
Rhoda, Ralph A., 3,757,728.

Berkovits, Barouh V., to American Optical Corporation. Synchronizedatrial and ventricular pacer and timing circuitry therefor. 3,757,791, Cl. 128-419.00p.

Berkowitz, Lawrence; Novickis, Georgs; and Sheth, Prafulchandra N., to Dickson Paper Fibre, Inc. Trash separating apparatus. 3,757,946, Cl. 209-120.000.

Berkowitz, Sidney; Cohen, Milton A.; and Yochum, Paul R., to FMC Corporation. Dichloroisocyanurate manufacture. 3,758,463, Cl. 260-248.00c.

Berntsen, Walter H.: *See*—
Chae, Hi Chul; Gelinas, Richard; Trusty, Jon Caton; and Berntsen, Walter H., 3,757,943.

Berry, George William; Gregory, Milton Wesley; and Ambrose, John Louis, to Johns-Manville Corporation. Composite pipe wrap material and method. 3,757,829, Cl. 138-146.000.

Berry, Jean-Luc, to Remy, E. P., et Cie. Device for opening containers in a sterile environment. 3,757,622, Cl. 83-165.000.

Best, Maurice P.: *See*—
Chessin, Hyman; and Best, Maurice P., 3,758,390.

Bethke, Robert P.; Mac Fadden, David P.; Nelson, Ronald H., Sr.; and Ross, Steven G., to U.S. Industries, Inc. Plastic bag. 3,758,024, Cl. 229-57.000.

Betke, Erich, to Dynamit Nobel Aktiengesellschaft. Apparatus for cementing together cut-to-size shank upper material. 3,757,373, Cl. 12-52.000.

Bezar, William, to Techni-Toll Inc. Tool for removing and inserting modules. 3,757,406, Cl. 29-203.00h.

Bhaskar, Surindar N.; Cutright, Duane E.; and Gross, Arthur, to United States of America, Army. Pulsating hydrojet lavage device. 3,757,806, Cl. 134-191.000.

Bice, Keith Charles, to Mindrill Limited. Drilling apparatus. 3,757,873, Cl. 173-43.000.

Bieber, William J. Transmission shifter having connectional mode and racing mode operational capabilities. 3,757,600, Cl. 74-473.00r.

Biesheuvel, Arnoldus: *See*—
Voorman, Johannes Otto; and Biesheuvel, Arnoldus, 3,758,885.

Bil, Milus S., to Clairol Incorporated. Heterocyclic nitro-P-phenylenediamines. 3,758,499, Cl. 260-326.501.

Bill, Jacky, to Haefely, Emil, & Cie AG. Process and means for replacement of components and/or operating media in encapsulated installations. 3,757,404, Cl. 29-200.00d.

Bilow, Norman, to Hughes Aircraft Company. Method of preparing resin compositions. 3,758,630, Cl. 260-823.000.

Bingham, Wallace Karl, to Minnesota Mining and Manufacturing Company. Reflex-reflective structures including fabric and transfer foils. 3,758,192, Cl. 350-105.000.

Biniecki, Stanislaw; Kubikowski, Piotr; Kostowski, Wojciech; and Nantka-Namirski, Pawel. Furan carboxylic acid pyridylamides. 3,758,485, Cl. 260-295.0am.

Binkert, Zita, nee Briem: *See*—
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Binkley, Ralph N., to Western Electric Company, Incorporated. Multidirectional indexing apparatus. 3,757,963, Cl. 214-1.0bh.

Bio-Logics Products, Inc.: *See*—
Jensen, Billy M., 3,758,754.

Bio-Tel Western Inc.: *See*—
Brayshaw, Forrest G.; and Roberts, Theodore S., 3,757,770.

Bishop, David A., to International Business Machines Corporation. Right hand margin control system. 3,757,921, Cl. 197-19.000.

Bissing, Donald E.; and Gash, Virgil W., to Monsanto Company. Preparation of monohaloacetyl halides. 3,758,569, Cl. 260-544.00y.

Bissing, Donald E.; and Gash, Wirgil W., to Monsanto Company. Preparation of monohaloacetyl halides. 3,758,571, Cl. 260-544.00y.

Biuro Konstrukcyjno-Technologiczne Maczyn i Urzadzen Budowlanych: *See*—
Kalisiak, Witold, 3,758,163.

Bivens, Donald Bernard; Patton, Leo Wesley; and Thomas, William Erbie, Jr., to Du Pont de Nemours, E. I., and Company. Hydrogenation of adiponitrile. 3,758,584, Cl. 260-583.00k.

Black and Decker Manufacturing Company, The: *See*—
Meshulam, Avram M., 3,758,221.

Black, Richard A., to Bell Fibre Products Corporation. Carton divider. 3,758,018, Cl. 229-15.000.

Blackburn, Camille R.; and Schmelzer, Jurgen F., to Rathmans of Pall Mall Canada Limited. Cigarette inspection. 3,757,564, Cl. 73-45.100.

Blackburn, James C.: *See*—
Tevelow, Frank L.; Blackburn, James C.; and Tischer, Frederick J., 3,758,862.

Blanc-Brude, Philippe: *See*—
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Blanz, John H.: *See*—
Menzin, Marvin; Blanz, John H.; Harvey, Andrew C.; and Rhee, Sang Soon, 3,758,657.

Blatter, Herbert Morton: *See*—
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Bledsoe, James O., Jr.; and Derfer, John M., to SCM Corporation. Hydrolyzed diels-alder adducts of ocimenol. 3,758,590, Cl. 260-598.000.

Bleiberg, Melvin L., to Atlantic Richfield Company, mesne. Method of inserting nuclear fuel rods in grid assembly. 3,757,403, Cl. 29-424.000.

Blutt, John Robert; and Harvey, Andrew Cecil, to Vermont Marble Company. Can body expanding and flanging apparatus. 3,757,555, Cl. 72-63.000.

Bohman, Carl E.: *See*—
Susman, Leon; Maguire, Hugh C.; and Bohman, Carl E., 3,758,849.

Boise Cascade: *See*—
Mead, Robert B., 3,758,130.

Boisvert, Conrad J., Jr.; and Mandia, Anthony L., to Cogar Corporation. Apparatus for determining partial memory chip categories. 3,758,759, Cl. 235-135.0ac.

Boivin, Jean L.; and Tremblay, Meude, to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence. Hydroxy-terminated polybutadienes. 3,758,426, Cl. 260-18.05n.

Bolger, John G., Jr., to Digilux Corporation. Arc printing of characters. 3,758,749, Cl. 219-216.000.

Bolick, Fred C., Jr.; and Godwin, James B., III, to Lanier Electronic Laboratory, Inc. Electrical condition control device for a transcribing machine. 3,758,726, Cl. 179-100.10r.

Bollig, Georg: *See*—
Scholz, Heinrich; Bollig, Georg; Grothe, Horst; and Otto, Gerhard, 3,757,848.

Bollinger, Frederick W., to Merck & Co., Inc. Resolution of DL-α-methylphenylalanine. 3,758,559, Cl. 260-518.00r.

Bolyos, Imre. Pedestal system for tables, bookshelves, shop furnishings and the like. 3,758,181, Cl. 312-107.000.

Bomar, Russel Paul. Magazine holding a multiple number of screws to be used with an electric drill. 3,757,407, Cl. 29-212.00r.

Bond, William D.; and Paterson, Ray Wesley. Water-propelled pool purifying float. 3,758,276, Cl. 23-267.00a.

Bonikowsky, Gary Wayne. Pneumatic seat for cycles. 3,758,153, Cl. 297-199.000.

Bonner, Gilbert B.; and Brumbaugh, Philip A., to International Business Machines Corporation. Controlled tension ribbon cassette. 3,758,012, Cl. 226-168.000.

Bonyhard, Peter Istvan, to Bell Telephone Laboratories, Incorporated. Network for transposing signal bit interleaving patterns. 3,758,722, Cl. 179-15.00a.

Boosen, Karl-Josef, to Lonza Ltd. Method of manufacturing tetronic acid. 3,758,515, Cl. 260-343.600.
Borg-Warner Corporation: *See—*
Boyer, Nicodemus E., 3,758,646.
Borom, Marcus P., to General Electric Company. Pneumatic analogue decompression instrument. 3,757,586, Cl. 73-432.00r.
Borsi, Jozsef: *See—*
Kasztreiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, 3,758,546.
Bosch, Robert, G.m.b.H.: *See—*
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Bosley, Denis V.: *See—*
Chang, Richard S.; Staats, William A.; Bosley, Denis V.; and Yamasaki, Toshio, 3,757,461.
Bostrom, Bertil Ingemar, to Aga Aktiebolag. Device for sealed electrode mounting. 3,758,806, Cl. 313-268.000.
Boue, Guy; and Vidberg, Marcel, to Automobiles Peugeot and Regie Nationale des Usines Renault. Device for regulating the flow of fuel injected into an internal combustion engine. 3,757,796, Cl. 123-97.00b.
Bouillon, Gratien; Tordion, Georges; and Tremblay, Gilles. Apparatus for testing the profile and the pitch of involute gear teeth. 3,757,425, Cl. 33-177.50d.
Bourbeau, Frank J., to General Motors Corporation. DC to AC static power converter with short cuicuit protection. 3,758,841, Cl. 321-14.000.
Bourns, Inc.: *See—*
Frey, Sydney W., Jr., 3,757,732.
Bowden, Roy Dennis, to Imperial Chemical Industries Limited. Preparation of 2-alkpoly/hydroxy pyrimidines. 3,758,472, Cl. 260-251.00r.
Bowditch, Hoel L., to Foxboro Company, The. Pneumatic relay. 3,758,093, Cl. 267-159.000.
Bowlin, Calvin E.; and Dombrowski, Anthony E. Liquid-cooled underlying support for the human body. 3,757,362, Cl. 5-348.0wp.
Boyer, Nicodemus E., to Borg-Warner Corporation. Halogen containing phosphorus monools. 3,758,646, Cl. 260-95.000.
Bozek, John W. Hydraulic remote fluid flow indicating device. 3,757,577, Cl. 73-209.000.
Brackmann, Warren A.: *See—*
Di Ianni, Daniel; and Brackmann, Warren A., 3,757,799.
Bradel, Norman F.; and Hormel, Herbert L., to Kinney, S. P., Engineers, Inc. Twin basket strainer. 3,757,956, Cl. 210-333.000.
Bradley, John N.; and Haug, J. Edward, to Budd Company, The. Reinforced wheel rim. 3,758,161, Cl. 301-63.00r.
Brady, Kenneth John; and Catalina, Edward L.; deceased (by Catalina, Doris M.; administratrix). Method of and apparatus for abrasive peeling. 3,757,677, Cl. 99-630.000.
Braga, Albert T., to Whirlpool Corporation. Combination detergent dispenser and manual filter. 3,757,543, Cl. 68-17.00r.
Brandt, Paul H. Refrigerant metering system. 3,757,532, Cl. 62-278.000.
Brandt, Robert O. Force indicator. 3,757,589, Cl. 73-502.000.
Braun Aktiengesellschaft: *See—*
Lohberg, Peter, 3,758,820.
Braun, William V.; Brown, Daniel P.; and Leitich, Albert J., to Motorola, Inc. Selective calling squelch circuit for receiving systems. 3,758,860, Cl. 325-18.000.
Braunlich, Peter F., to Bendix Corporation, The. Surface imaging exoelectron microscope. 3,758,778, Cl. 250-307.000.
Brayshaw, Forrest G.; and Roberts, Theodore S., to Bio-Tel Western Inc. Physiological pressure sensing and telemetry means employing a diode connected transistor transducer. 3,757,770, Cl. 128-2.00r.
Breeden, Robert H., to Sperry Rand Corporation. Power transmission. 3,758,235, Cl. 417-222.000.
Breetvelt, Emile, to Intermenua (Proprietary) Limited. Guillotines and like shearing machines. 3,757,621, Cl. 83-157.000.
Breslow, Jeffrey D.; and Glass, Marvin I., to Glass, Marvin, & Associates. Doll with movable part for coaction with movable part of accessory. 3,757,463, Cl. 46-118.000.
Breslow, Jeffrey D.; and Jaworski, Eugene, to Glass, Marvin, & Associates. Smoking apparatus. 3,757,801, Cl. 131-171.00r.
Bridgeford, Ronald E.; and Cawi, Vernon A., to Phillips Petroleum Company. Production of motor fuels. 3,758,401, Cl. 208-78.000.
Bridwell, Harold C.: *See—*
Wilder, Arthur G.; and Bridwell, Harold C., 3,757,878.
Wilder, Arthur G.; and Bridwell, Harold C., 3,757,879.
Briem, Fritz, to Briem, Marietta and Binkert, Zita, nee Briem. Method of preserving hops. 3,758,310, Cl. 99-50.500.
Briem, Marietta: *See—*
Briem, Fritz, 3,758,310.
Briggs, Richard S., to Integrated Handling Systems. Pivotally mounted fork extensions for low-lift pallet trucks. 3,758,075, Cl. 254-2.00r.
Bristol-Myers Company: *See—*
Berghahn, Walter G., 3,757,979.
Broadfoot, John T. Method for pneumatically placing semi-fluid materials. 3,758,034, Cl. 239-9.000.
Brockway Glass Company, Inc.: *See—*
Paruolo, Miller J.; McMackin, John J.; and McMeekin, James H., 3,758,215.
Broderick, Walter M. Mold protector. 3,757,679, Cl. 100-53.000.
Broeck, James Samuel Ten, Jr.; Perry, Robert Bruce; Laurance, Dale Roderic; and Fisher, John Richard, to Du Pont de Nemours, E. I., and Company. Process for recovering regenerated cellulose. 3,758,457, Cl. 260-212.000.
Broker, Erich, to Hammelmann, Paul, Maschinenfabrik. Pressure regulator. 3,757,811, Cl. 137-116.000.
Brooker, Leslie G. S.: *See—*
Fumia, Arthur, Jr.; and Brooker, Leslie G. S., 3,758,461.
Brooks, Dean P.; and McDaniel, Gordon M., to Hesston Corporation. Press mechanism for stack-forming implements. 3,757,687, Cl. 100-270.000.
Brooks, Joseph F.; and Schaefer, Harold W., to National Union Electric Corporation. Belt drive assembly. 3,757,382, Cl. 15-389.000.
Brosser, Paul Edward: *See—*
Savage, Donald Stanley; and Brosser, Paul Edward, 3,757,417.
Brot, Blasius: *See—*
Streule, Josef; and Brot, Blasius, 3,757,802.
Brother Kogyo Kabushiki Kaisha: *See—*
Sumino, Shouji, 3,757,429.
Brown, Bruce J., to United States of America, Navy. Noise-riding slicer. 3,758,868, Cl. 328-165.000.
Brown, Daniel P.: *See—*
Braun, William V.; Brown, Daniel P.; and Leitich, Albert J., 3,758,860.
Brown, Francis Barton: *See—*
Erickson, John W.; and Brown, Francis Barton, 3,758,238.
Brown, Leanne M.: *See—*
Mazdiyasni, Khodabakhsh; Brown, Leanne M.; and Lynch, Charles T., 3,757,412.
Brown, Martin L., to Du Pont de Nemours, E. I., and Company. Dual latex adhesive system. 3,758,362, Cl. 156-310.000.
Brown, Omar L., to Fraze, Ermal C. Can end with inseparable tear strip. 3,757,989, Cl. 220-54.000.
Bruce, Roger K.; and Marhold, Werner, to Sterigard Corporation. Apparatus for advancing and retracing a dispenser body to and from a bag applicator. 3,757,651, Cl. 93-36.000.
Bruckmann, Paul-Gunther: *See—*
Logemann, Heino; and Bruckmann, Paul-Gunther, 3,758,642.
Bruckner, James V.; Patrick, William A.; and Yingst, Thomas O., to Polyvend, Inc. Anti-theft means for vending machine modules. 3,757,993, Cl. 221-80.000.
Bruderer AG: *See—*
Portmann, August Thomas, 3,758,011.
Brudi Equipment Inc.: *See—*
Brudi, Ronald A.; and Hamlik, Jerry P., 3,757,977.
Brudi, Ronald A.; and Hamlik, Jerry P., to Brudi Equipment Inc. Tote pan handler attachment for lift trucks. 3,757,977, Cl. 214-620.000.
Brukovsky, Igor Pavlovich; Yakovlev, Pavel Borisovich; Gutterman, Kirill Davidovich; Perov, Alexandr Vasilievich; Hukov, Vladimir Fedorovich; Nekrasova, Larisa Petrovna; and Ivanovsky, Jury Dmitrievich. Device for automatically controlling electrical condiions of an electron beam unit. 3,758,816, Cl. 315-137.000.
Brumbaugh, Philip A.: *See—*
Bonner, Gilbert B.; and Brumbaugh, Philip A., 3,758,012.
Brumm, Douglas B., to Battelle Development Corporation, The. Method of copying holograms. 3,758,186, Cl. 350-3.500.
Brunel, Francis J.; and Diacont, George P., to AMF Incorporated. Armhole felling machine. 3,757,712, Cl. 112-132.000.
Brunnee, Curt; and Jenckel, Ludolf, to Varian Mat GmbH. Ion source for vaporing and ionizing solid substances. 3,758,777, Cl. 250-425.000.
Bruno, August Joseph: *See—*
Henderson, Norman Leo; Bruno, August Joseph; and Drain, James Joseph, 3,758,680.
Brunswick Corporation: *See—*
Hungerford, Daniel Comstock, 3,757,727.
Bubak, John: *See—*
Rusch, Allan C.; and Bubak, John, 3,757,525.
Buchamann, Fred J.: *See—*
Eberly, Paul E., Jr.; Cull, Neville L.; and Buchamann, Fred J., 3,758,600.
Bucheli, Josef. Toy building element constructions. 3,757,393, Cl. 24-252.0cp.
Bucher, Hans, to Mettler Instrumente AG. Knife edge bearing for balance beam. 3,758,173, Cl. 308-2.00r.
Buchmann, Cordelia Atkeson: *See—*
Eberly, Paul E., Jr.; Cull, Neville L.; and Buchamann, Fred J., 3,758,600.
Buck, Charles E., to General Motors Corporation. Three position solenoid idle stop. 3,757,611, Cl. 74-860.000.
Buck, Gordon H.; Bales, Joseph H.; and Prodger, Brian S. Powered dragster having lateral stability coacting with track. 3,757,459, Cl. 46-202.000.
Buck, Willard E.; and Holland, Thomas E., to Technical Operations, Incorporated. Optical raster producing system. 3,758,715, Cl. 178-7.600.
Bucode, Inc.: *See—*
Klang, Daniel M.; and Mosciatti, Roger, 3,758,197.
Budd Company, The: *See—*
Bradley, John N.; and Haug, J. Edward, 3,758,161.
Goldberg, Gerald L.; and Wasselle, Henry W., III, 3,757,562.
Buecker, Carl Henry; deceased (by Buecker, Majorie J.; executrix), to Magnavox Company. Preset frequency selection system. 3,758,751, Cl. 235-61.11e.

Buecker, Majorie J.: *See—*
Buecker, Carl Henry, 3,758,751.
Bugaut, Andree: *See—*
Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, 3,758,268.
Kalopissis, Gregoire; and Bugaut, Andree, 3,758,573.
Buhler, Otto R.; and Cutter, Joseph T., to International Business Machines Corporation. Exponential predictor and sampled-data systems. 3,758,757, Cl. 235-150.001.
Bungo, Edward M.: *See—*
Parkhurst, Robert H.; Beck, William R.; and Bungo, Edward M., 3,757,824.
Bunn, Dorrance P., Jr.: *See—*
Strickland, John C.; and Bunn, Dorrance P., Jr., 3,758,628.
Bunting, William M.; and Langer, Arthur W., Jr., to Esso Research and Engineering Company. Complexes of inorganic sodium compounds and chelating amines. 3,758,585, Cl. 260-583.00p.
Buonaura, Anthony: *See—*
Chisholm, James Edwards; Hicks, Clark Thomas; and Buonaura, Anthony, 3,757,358.
Burgarella, John P., to Polaroid Corporation. Photoflash apparatus. 3,757,643, Cl. 95-11.00r.
Burgess, Colin M.; Feather, Peter; and Goatly, Philip H., to BDH Pharmaceuticals Limited. 17α-(5'-Substituted-5'-hydroxy-penta-1',3'-divinyl)-steroids. 3,758,521, Cl. 260-397.500.
Burgess, Ronald R.; Coleman, Michael G.; and Grenon, Lawrence A., to Motorola, Inc. Light emitting diode display for electronic timepiece. 3,757,511, Cl. 58-50.00r.
Burke, Harold J., to General Motors Corporation. Collapsible steering column assembly. 3,757,601, Cl. 74-492.000.
Burrell, Geoffrey John: *See—*
Bateman, Douglas Alfred; Burrell, Geoffrey John; and Killick, Donald Edward, 3,758,211.
Burroughs Corporation: *See—*
Kruklitis, Karlis, 3,758,727.
Burroughs Wellcome Co.: *See—*
Elion, Gertrude B.; and Strelitz, Robert A., 3,758,684.
Burton, Maurice G. Mobile unit with overhead compartment. 3,758,147, Cl. 296-23.00r.
Bush, Roy L.; and Beattie, Harold R., to Continental Oil Company. Apparatus for securing small diameter conduit to a larger diameter tubing string or the like. 3,757,387, Cl. 24-81.0cc.
Butera, Thomas, Jr.: *See—*
Stasio, Robert; and Butera, Thomas, Jr., 3,758,219.
Buth, Wallace R. Disposable flexible liner for paint trays. 3,757,990, Cl. 220-63.00r.
Buysch, Hans-Josef; Krimm, Heinrich; and Margotte, Dieter, to Bayer Aktiengesellschaft. 2-(Hydroxyphenyl)-2-(isopropenylphenyl)-propanes, processes for their manufacture. 3,758,597, Cl. 260-613.00r.
Bykhovsky, David Grigorievich; and Medvedev, Alexandr Yakovlevich. Inclusion hafnium electrode with uses in an active medium. 3,758,746, Cl. 219-145.000.
Byrd, Harold R.: *See—*
Halvorsen, Elmer F.; and Byrd, Harold R., 3,757,949.
Byrne, Joseph E.: *See—*
Anstin, Wayne D.; Byrne, Joseph E.; Clifford, Gilbert F.; Henkel, Robert W.; Odell, Arthur W.; Quaglia, Lawrence T.; and Smith, Donald F., 3,757,941.
C & M Manufacturing Company: *See—*
Smith, Raymond L., Jr., 3,757,899.
C. M. Systems, Incorporated: *See—*
Deming, Joseph A.; Heffron, Allen J.; and Estry, Arthur L., 3,757,615.
Cables de Lyon Alsacienne: *See—*
Huriez, Claude, 3,758,353.
Calame, Jean Pierre: *See—*
Siddall, John B.; and Calame, Jean Pierre, 3,758,516.
Calcagno, Benedetto: *See—*
Piccolo, Luigi; and Calcagno, Benedetto, 3,758,675.
Caldwell, Robert H.; and Pauline, Larry L., to Grizzly Corporation. Multi-purpose stake. 3,758,062, Cl. 248-156.000.
Caledon Engineering Inc.: *See—*
Johnston, Robert A.; Docherty, Daniel; and Arrington, Robert L., 3,757,493.
Callan, John E., to Cities Service Company. Extruder. 3,758,001, Cl. 222-146.000.
Camacho, George T. Fixture for saw. 3,757,628, Cl. 83-745.000.
Cambridge Filter Corporation: *See—*
Berg, Arthur Henry, 3,757,496.
Cambridge Scientific Instruments Limited: *See—*
Taylor, Peter Graham, 3,757,591.
Cameron, Bruce M. Shoe and method of making same. 3,757,437, Cl. 36-59.00r.
Campbell, Ronald F., to Chemetron Corporation. Method for carbon dioxide snow separation. 3,757,367, Cl. 62-10.000.
Campen, Jan P.; Spitzer, Ernst L.T.M.; Senden, Wilhelmus A. A.; and Hill, Jeffrey S., to Shell Oil Company. Process for producing sulphonium compounds. 3,758,594, Cl. 260-607.00r.
Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See—*
Boivin, Jean L.; and Tremblay, Meude, 3,758,426.
Canadian General Electric Company Limited: *See—*
Mac Kelvie, John Stewart; and Clarke, Ganton Webster, 3,758,845.
Canadian Industries Limited: *See—*
Connelly, William; Sydenham, Leonard; and Szilagyi, John, 3,758,428.
Candor, James T.: *See—*
Candor, Robert R.; and Candor, James T., 3,757,426.
Candor, Robert R.; and Candor, James T. Liquid removing method. 3,757,426, Cl. 34-1.000.
Cannon, Robert L.; Goldberg, Herbert E.; Thaler, Sherwood S.; and Daynard, Richard F., to American Optical Corporation. Temporary power supply for a heart-stimulating device. 3,757,794, Cl. 128-419.00p.
Canon Kabushiki Kaisha: *See—*
Kanie, Shiomi; Shoji, Takeo; Nogi, Isao; and Mitani, Taizo, 3,758,198.
Cantaloube, Bernard Andre: *See—*
Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, 3,757,522.
Cantz, Rolf J., to Kennametal Inc. Tire stud. 3,757,841, Cl. 152-210.000.
Canup, Robert E., to Texaco Inc. Saturable-core square wave oscillator circuit. 3,758,821, Cl. 315-209.00t.
Cappel, Marie-Luisf: *See—*
Frohlich, Alfons; Cappel, Marie-Luisf; and Stubiger, Ernst, 3,757,541.
Capps, David B., to Parke, Davis & Company. Novel anti-infective agents and means of producing the same. 3,758,491, Cl. 260-306.700.
Carborundum Company, The: *See—*
Halvorsen, Elmer F.; and Byrd, Harold R., 3,757,949.
Carder, Mervin L. Fluid dispensing nozzle and latchpin therefor. 3,757,834, Cl. 141-225.000.
Carlsson, Per Arvid Emil; Corrodi, Hans Rudolf; Hallihagen, Sven Goran; and Junggren, Ulf Krister, to Aktiebolaget Hassle. Substituted hydroxyphenyl-alkylamines in the treatment of mental illness. 3,758,691, Cl. 424-330.000.
Carner, Walter J., to Institute of Gas Technology. Engine control apparatus. 3,757,755, Cl. 123-148.00e.
Carpiciani, Poerio. Float valve for dry washing machines. 3,757,542, Cl. 68-12.00r.
Carr, Robert L., to Goodrich, B. F., Company, The. Belted pneumatic tire. 3,757,843, Cl. 152-301.0dm.
Carroll, Joseph E. Egg cooking device. 3,757,674, Cl. 99-440.000.
Cartridge Television, Inc.: *See—*
Crosno, Philip M., 3,758,710.
Crosno, Philip M., 3,758,711.
Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, to Societe Nationale d'Etude et de Construction de. Devices for pre-vaporising liquid fuel. 3,757,52, Cl. 60-39.710.
Carus Corporation: *See—*
Anderson, Fred J.; and Kessler, Jack L., 3,758,391.
Anderson, Fred J.; and Kessler, Jack L., 3,758,392.
Case, J. I., Company: *See—*
Redenbarger, Philip D.; and Khilnani, Ashok, 3,757,951.
Cass, William E.: *See—*
Frauenglass, Elliott; and Cass, William E., 3,757,828.
Cassar, Richard D., to Sun Research and Development Co. Crosslinked polyurea from dihydrazides of methylated muconic acids. 3,758,637, Cl. 260-859.000.
Catalina, Doris M.: *See—*
Brady, Kenneth John; and Catalina, Edward L., 3,757,677.
Catalina, Edward L.: *See—*
Brady, Kenneth John; and Catalina, Edward L., 3,757,677.
Caton, James E.: *See—*
Pfenning, Ray C.; and Caton, James E., 3,757,625.
Cattin, Walter J.; and Paffrath, Edgar C., to General Motors Corporation. Dual roller throttle control-cable mechanism. 3,757,603, Cl. 74-513.000.
C.A.V. Limited: *See—*
Kemp, Kenneth Albert Walters; and Sosnowski, Stanislaw Jan Antoni, 3,758,240.
Cavanagh, John R.: *See—*
Cross, Kenneth R.; Cavanagh, John R.; and Newman, Richard L., 3,758,233.
Cawi, Vernon A.: *See—*
Bridgeford, Ronald E.; and Cawi, Vernon A., 3,758,401.
CBF Systems, Inc.: *See—*
Covarrubtas, George S., 3,757,810.
C.C.L. Systems Limited: *See—*
Edwards, Hugh Jeremy Willis, 3,757,390.
Celanese Corporation: *See—*
Organ, Glenn Edward, 3,758,566.
Rich, Ernest Joseph, 3,758,373.
Century Laboratories Inc.: *See—*
Rovinski, Walter M., 3,757,779.
Cerny, Louis J.: *See—*
Anderson, Frank H.; Cerny, Louis J.; Murphy, James J.; and Sieglinger, John C., 3,758,724.
C.E.R.P.H.A. (Centre Europeen de Recherches Pharmacologiques): *See—*
Godfroid, Jean Jacques; and Thuillier, Jean Eugene, 3,758,506.
Ceskoslovenska Akademie ved: *See—*
Hrdina, Jiri, 3,758,239.

Chae, Hi Chul; Gelinas, Richard; Trusty, Jon Caton; and Berntsen, Walter H., to Lilly, Eli, and Company. Electronic system and method for capsule inspection. 3,757,943, Cl. 209-111.700.

Chamberas, George Athanasios, to RCA Corporation. Simulated load for internal combustion engines. 3,757,571, Cl. 73-116.000.

Chamberlin, Virgil W., to Lockheed Aircraft Corporation. Variable height stairs for work platform. 3,757,894, Cl. 182-106.000.

Chan, Chee Keung, to M & T Chemicals Inc. Novel zinc plating process. 3,758,386, Cl. 204-55.000.

Chance, A. B., Company: *See—*
Poyner, Weston R.; Stallbaumer, Richard J.; and Eskridge, Wade A., 3,757,524.

Chandra, Grish; Owen, William John; Lloyd, Norman Cecil; and Cooper, Bryan Ewart, to Midland Silicones Limited. Organosilicon compounds. 3,758,541, Cl. 260-448.20q.

Chang, Charles H., to GAF Corporation. Anthraquinone dyes containing N-methylenelactam. 3,758,505, Cl. 260-326.50c.

Chang, Richard S.; Staats, William A.; Bosley, Denis V.; and Yamasaki, Toshio, to Mattel, Inc. Impact-damage-resistant, propeller-driven toy. 3,757,461, Cl. 46-243.0av.

Chang, Yun Feng: *See—*
Labana, Santokh S.; Chang, Yun Feng; and Theodore, Ares N., 3,758,635.

Chapman, Walter Harry: *See—*
Watts, Raymond K.; and Chapman, Walter Harry, 3,758,050.

Charles Machine Works, Inc., The: *See—*
Schuermann, Kenneth W., 3,757,642.

Chatterji, Jiten: *See—*
Malone, William T.; Holtmyer, Marlin D.; Tinsley, John M.; and Chatterji, Jiten, 3,758,406.

Chavet, Itzhak, to State of Israel, Atomic Energy Commission. Control mechanism for the fine positional adjustment of an object. 3,757,962, Cl. 214-1.0cm.

Cheale, Daniel, to Howard Harvestore Limited. Chain links. 3,757,595, Cl. 74-245.00c.

Cheatham, Burton L., II: *See—*
Ruegg, Frank A.; Spracklen, Stanford B.; and Cheatham, Burton L., II, 3,757,771.

Chemcut Corporation: *See—*
Striedieck, Walter J.; and Woodring, Daniel, 3,758,351.

Chemetron Corporation: *See—*
Campbell, Ronald F., 3,757,367.

Chemical Construction Corporation: *See—*
Tourtellotte, John F.; Negra, John S.; Warshaw, Abe; and Villiers-Fisher, John F., 3,757,521.

Chen, Nai Yuen; and Lucki, Stanley J., to Mobil Oil Corporation. Selective catalysis. 3,758,602, Cl. 260-676.00r.

Cherniavskyj, Jaroslav: *See—*
Thomsen, Jack W.; Nupnau, Arthur E.; Kim, Raymond W. H.; and Cherniavskyj, Jaroslav, 3,758,047.

Chessin, Hyman; and Best, Maurice P., to M & T Chemicals Inc. Novel chromium plating compositions. 3,758,390, Cl. 204-51.000.

Chet Industries (Proprietary) Limited: *See—*
Kessler, Cecil, 3,758,246.

Chevron Research Company: *See—*
Adams, John Howard, 3,758,437.

Chiabrandy, Robert E., to General Electric Company. Bolt accelerator for recoil operated gun. 3,757,636, Cl. 89-169.000.

Chiang, Ta-kuan. Electrostatic cigarette filtering arrangement. 3,757,803, Cl. 131-188.000.

Chicago Display Company: *See—*
Goodman, Carol C.; and Feibel, William (said Goodman assor. to), 3,758,695.

Childs, Ronald Frederick George; and Mosse, Richard Wolfgang Emil, to Corrugated Products Limited. Pack for articles. 3,758,020, Cl. 229-39.00b.

Chiron, Bernard: *See—*
Beguin, Daniel E.; Chiron, Bernard; and Cuo, Michel P. G., 3,758,879.

Chisholm, James Edwards; Hicks, Clark Thomas; and Buonaura, Anthony, to Formica Corporation. Free-standing shower. 3,757,358, Cl. 4-146.000.

Chiyoda Kako Kensetsu Kabushiki Kaisha: *See—*
Yokoyama, Tuhru; Kanda, Tetsuo; Oshio, Yudu; and Yoshimatsu, Akira, 3,758,851.

Christensen Diamond Products Company: *See—*
Wilder, Arthur G.; and Bridwell, Harold C., 3,757,878.
Wilder, Arthur G.; and Bridwell, Harold C., 3,757,879.

Christensson, Od Wikar, to Christenssons, Maskiner & Patenter Aktiebolag. Re-closing arrangement for packages of cardboard. 3,758,022, Cl. 229-44.00r.

Christenssons, Maskiner & Patenter Aktiebolag: *See—*
Christensson, Od Wikar, 3,758,022.

Christine, William C.; and Watt, William E. R., to Inpaco. Dispensing system. 3,758,005, Cl. 222-309.000.

Chromalloy American Corporation: *See—*
Palmenberg, Edward C., 3,757,424.

Chrysler United Kingdom Limited: *See—*
Hunt, Allan Frederick, 3,757,753.

Chugai Seiyaku Kabushiki Kaisha: *See—*
Arita, Masahiko, 3,758,455.

Chunga, Lorinzo, Sr., to Creative Product Lines Inc. Eyeglass frames. 3,758,202, Cl. 351-41.000.

Ciba-Geigy AG: *See—*
Ackermann, Hans; Seiler, Herbert; and Dussy, Paul, 3,758,470.
Datye, Keshav V.; and Milicevic, Branimir, 3,758,272.
Martin, Henry; and Pissiotas, Georg, 3,758,579.
Pugin, Andre; and von der Crone, Jost, 3,758,497.
Rickenbacher, Hans Rudolf, 3,758,518.
Seitz, Karl; Klahre, Guenter; and Scheutz, Hans-Ulrich, 3,758,467.
Siegrist, Adolf Emil; Liechti, Peter; Maeder, Erwin; Guglielmetti, Leonardo; Meyer, Hans Rudolf; and Weber, Kurt, 3,758,462.

Ciba-Geigy Corporation: *See—*
Anner, Georg; and Wieland, Peter, 3,758,524.
Dellian, Kurt A., 3,758,394.
Dexter, Martin; and Steinberg, David, 3,758,549.
Falk, Robert Allan; and Kleiner, Eduard Karl, 3,758,447.
Jeger, Oskar; and Schaffner, Kurt, 3,758,588.
Lucas, Robert Armistead, and Blatter, Herbert Morton, 3,758,473.
Marxer, Adrian, 3,758,527.

Cichowski, Robert S., to Phillips Petroleum Company. Processes for the oxidative dehydrogenation of hydrocarbon feedstocks. 3,758,609, Cl. 260-680.00e.

Ciger, Nicolas: *See—*
Stauber, Siegfried; Ciger, Nicolas; and Schaeffer, Klaus-Peter, 3,758,837.

Cities Service Company: *See—*
Callan, John E., 3,758,001.
Wadsworth, Francis T.; and McAlister, Charles G., 3,758,619.

Claiborne, Jefferson Lyle, to Dixie Yarns, Inc. Method and apparatus for determining the knitability of yarns. 3,757,536, Cl. 66-1.00r.

Clairol Incorporated: *See—*
Bil, Milus S., 3,758,499.

Clampitt, Richard L.; and Curzon, James E., to Phillips Petroleum Company. Secondary recovery methods. 3,757,863, Cl. 166-307.000.

Clark Equipment Company: *See—*
Short, Ralph H.; and Goodwine, Paul C., 3,757,881.

Clark, Lowell E., to Motorola, Inc. Transistor with improved breakdown mode. 3,758,831, Cl. 317-235.00r.

Clark, Robert L.: *See—*
Rogers, Edward F.; and Clark, Robert L., 3,758,561.

Clarke, Ganton Webster: *See—*
Mac Kelvie, John Stewart; and Clarke, Ganton Webster, 3,758,845.

Clarke, Philip. Harvesting container particularly for use in picking fruit. 3,757,985, Cl. 220-29.000.

Clarke, Raymond: *See—*
Johnston, Richard; and Clarke, Raymond, 3,758,273.

Clary Corporation: *See—*
Frydenberg, Donald V., 3,757,422.

Claxton, Lindsay Graham, to Mindrill Limited. Drilling apparatus with mast filling about upper point axis fixed against horizontal translation. 3,757,874, Cl. 173-43.000.

Clements, Michael John. Removal of gases from containers. 3,757,865, Cl. 169-2.00r.

Clifford, Gilbert F.: *See—*
Anstin, Wayne D.; Byrne, Joseph E.; Clifford, Gilbert F.; Henkel, Robert W.; Odell, Arthur W.; Quaglia, Lawrence T.; and Smith, Donald F., 3,757,941.

Clinton, William D., to Signet Controls, Inc. Turbine meter having improved accuracy. 3,757,578, Cl. 73-231.00r.

Clonts, Kenyon E., to Merichem Company. Liquid-liquid mass transfer process and apparatus. 3,758,404, Cl. 208-263.000.

Cloud, Charles E., to Cloud Machine Corporation. Cutting apparatus. 3,757,620, Cl. 83-88.000.

Cloud Machine Corporation: *See—*
Cloud, Charles E., 3,757,620.

Coates, Clarence A., Jr.: *See—*
Fisher, John G.; and Coates, Clarence A., Jr., 3,758,466.

Cobble, James T., to B & J Machinery Company, Inc. Knife block for a tufting machine. 3,757,709, Cl. 112-79.00r.

Codrino, Giuseppe. Metal cable terminal for light guiding cable. 3,758,189, Cl. 350-96.00b.

Cogar Corporation: *See—*
Boisvert, Conrad J., Jr.; and Mandia, Anthony L., 3,758,759.

Cohen, Abraham D., to Esso Research and Engineering Company. Dehydrogenation catalyst. 3,758,625, Cl. 260-669.00r.

Cohen, Hyman L.; King, James R., Jr.; and Minsk, Louis M., to Eastman Kodak Company. Novel polymers and photographic elements containing same. 3,758,445, Cl. 260-78.0sc.

Cohen, Milton A.: *See—*
Berkowitz, Sidney; Cohen, Milton A.; and Yochum, Paul R., 3,758,463.

Colbridge, Thomas D., to Rack Engineering Company. Storage rack with dual safety bridge. 3,757,967, Cl. 214-16.40r.

Cole, John: *See—*
Kouwenhoven, Harman W.; and Cole, John, 3,758,667.

Coleman, Michael G.: *See—*
Burgess, Ronald R.; Coleman, Michael G.; and Grenon, Lawrence A., 3,757,511.

Colgate-Palmolive Company: *See—*
Lee, Sydney, 3,758,533.
Ramachandran, Pallassana; and Yurko, Joseph, 3,758,408.

Collin, R., Consulting AB: *See—*
Kolhi, Martti Ilmari, 3,758,258.

Collinge, Robert Alan, to Smith, F., & Company (Whitworth) Limited. Textile treatment apparatus. 3,757,548, Cl. 68-205.00r.

Colombini, Ariano: *See—*
Viviani, Bruno; Sironi, Giuseppe; and Colombini, Ariano, 3,758,293.

Combet, Michel, to European Atomic Energy Community (Euratom). Circuit for the parallel conversion of numbers A into A base A into numbers B to A base of B or vice versa. 3,758,766, Cl. 235-155.000.

Combustion Engineering, Inc.: *See—*
Hurlbut, William B., Sr.; Liebig, Preston D.; and Maurin, Peter G., 3,757,498.
Williamson, Ronald Eugene; Porter, Sidney Clark, Jr.; and Shotting, Kenneth Frederic, 3,757,484.

Commissariat a l'Energie Atomique: *See—*
Daval, Jacques; and Forrat, Francis, 3,758,194.

Communications Satellite Corporation: *See—*
Sekimoto, Tadahiro, 3,758,713.

Compact Closures, Inc.: *See—*
Pagliaro, James M., 3,757,845.

Compagnie Francaise de Raffinage: *See—*
Maurin, Jean, 3,758,612.

Compagnie Generale d'Electricite: *See—*
Faily, Jacques; Richez, Jacques; Lasnf, Claude; and Lazennec, Yvon, 3,758,337.

Compagnie Generale des Etablissements Michelin raison Soci le Michelin & Cie: *See—*
Verdier, Henri, 3,757,844.

Compo Industries, Inc.: *See—*
Winkler, Julius G.; and Corazzini, Pasquale, 3,757,436.

Comprehensive Health Testing Laboratories, Inc.: *See—*
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Computer Identics Corporation: *See—*
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Condon, Joseph Henry: *See—*
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Connelly, William; Sydenham, Leonard; and Szilagyi, John, to Canadian Industries Limited. Acrylic coating compositions. 3,758,428, Cl. 260-17.00r.

Connor, Daniel S.; and Krummel, Harry Karl, to Procter & Gamble Company, The. Detergent composition containing a homogeneously polyfunctionally-substituted aromatic acid sequestering agent. 3,758,420, Cl. 252-550.000.

Connors, Edward F.: *See—*
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Cook, Albert W.: *See—*
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Cook, Kenneth George; and Wheldon, Robert Joseph, to M-O Valve Company Limited, The. Electric discharge devices. 3,758,803, Cl. 313-174.000.

Cook, Toby M.; and Tucker, Gerald L., to Mississippi Chemical Corporation. Ammonium nitrate neutralizer. 3,758,277, Cl. 23-285.000.

Cook, Walter F. Display holder. 3,757,442, Cl. 40-128.000.

Cooke, William R.: *See—*
Agee, Robert B.; and Cooke, William R., 3,758,565.

Coombes, James Eric. Tool. 3,757,376, Cl. 15-202.000.

Coons, Everett A.; Poggiali, Lewis D.; and Jacalone, Richard P., to Olinkraft, Inc. Bathtub container. 3,757,935, Cl. 206-46.00h.

Cooper, Bryan Ewart: *See—*
Chandra, Grish; Owen, William John; Lloyd, Norman Cecil; and Cooper, Bryan Ewart, 3,758,541.

Coplin, Jess Lee, to Lennox Industries Inc. Plenum construction. 3,757,665, Cl. 98-40.00r.

Copping, Bruce G., to Automatic Sprinkler Corporation. Beverage flow distributor means for bottle filling devices. 3,757,835, Cl. 141-286.000.

Corazzini, Pasquale: *See—*
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Cornelia, Donald E. Tool holding device. 3,758,125, Cl. 279-103.000.

Corrodi, Hans Rudolf: *See—*
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Costa, Lorenzo Federico: *See—*
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Cotter, John Thomas: *See—*
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Cottle, Herbert. Fish lure. 3,757,451, Cl. 43-42.100.

Coughlin, Joseph F.; and Ruszkay, Richard J., to Du Pont de Nemours, E. I., and Company. Process for controlling molecular weight of alpha-olefin polymers. 3,758,446, Cl. 260-80.780.

Coulson, Dale Robert, to Du Pont de Nemours, E. I., and Company. Catalytic addition of secondary aliphatic amines to ethylene in presence of rhodium or iridium salts. 3,758,586, Cl. 260-583.00r.

Cousin, Barry D., to Plas/Steel Products, Inc. Archery bow with removable inserts to vary draw force. 3,757,762, Cl. 124-24.000.

Covarrubtas, George S., to CBF Systems, Inc. Shear valve and frangible fitting. 3,757,810, Cl. 137-68.000.

Cowan, Joseph Lamar, to Honeywell Information Systems Inc. Error detection for arithmetic and logical unit modules. 3,758,760, Cl. 235-153.0bb.

Cowley, Richard Thomas; and Hulls, Leonard Robin, to RCA Corporation. Simulated load for internal combustion engines. 3,757,570, Cl. 73-116.000.

Cox Gough, John Richard: *See—*
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Cox, Richard M.; and Savatgy, Evan, to Bendix Corporation, The. Copper foil ferrite phase shifter. 3,758,883, Cl. 333-24.100.

Cox, Thomas L.; and Rodriguez, David G., to J & J Manufacturing Company. Palletizing apparatus. 3,757,966, Cl. 214-6.00p.

Craik, Darrel W., to Teledyne, Inc. Method of manufacturing sealing rings. 3,757,413, Cl. 29-557.000.

Crandall, Stanley C.: *See—*
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Crankshaft Machine Company: *See—*
Deming, Joseph A.; Heffron, Allen J.; and Estry, Arthur L., 3,757,615.

Craveri, Renato; Manachini, Pier Luigi; and Araguzzini, Fabrizio, to Societa Italiana Resine S.I.R.S.P.A. Antibiotic thermozymocidin and a process for its preparation. 3,758,529, Cl. 260-404.000.

Crawford, David Lee; Earl, Robert Brooks; and Monroe, Roger F., to Dow Chemical Company, The. Friction reducing and gelling agent for organic liquids. 3,757,864, Cl. 166-308.000.

Creative Product Lines Inc.: *See—*
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Crocker, Charles W.; and Barton, Charles E., to Esso Production Research Company. Device for measuring strain in rotating bodies. 3,757,580, Cl. 73-136.00a.

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Crosno, Philip M., to Cartridge Television, Inc. Time base error correction system, including converter, for video reproducer and/or recorder. 3,758,710, Cl. 178-6.6tc.

Crosno, Philip M., to Cartridge Television, Inc. Time base error correction system including electronically variable delay line for video reproducer and/or recorder. 3,758,711, Cl. 178-6.67c.

Cross, Kenneth R.; Cavanagh, John R.; and Newman, Richard L., to General Motors Corporation. Vibration damping coatings. 3,758,233, Cl. 416-229.000.

Cross, Thomas S.: *See—*
Waiwood, William P.; Trybuski, John E.; Friedl, Wendel M.; and Cross, Thomas S., 3,757,917.

Crossman, Richard L.; Cook, Albert W.; and Hawley, Jesse G., to Goodyear Tire & Rubber Company, The. Key slot segments for driving brake discs. 3,757,907, Cl. 188-218.0xl.

Crounse, Nathan N.; Werner, Raymond E.; and Dimond, Harold L., to Sterling Drug Inc. Bromination of salicylanilide. 3,758,575, Cl. 260-559.00a.

Crowe, Gordon Appling, to BASF Wyandotte Corporation. Vacuum holder to conform casting surface. 3,757,735, Cl. 118-50.000.

Cruickshank, David G.; and Tata, Raymond V., to Leesona Corporation. Supply bobbin delivery mechanism. 3,757,992, Cl. 221-13.000.

Crum, Gerald W.; and Sauter, Richard J., to United States of America, National Aeronautics and Space Administration. Foot pedal operated fluid type exercising device. 3,758,112, Cl. 272-79.00c.

Crutchley, Frederick; and Hindley, David, to Automotive Products Company. Improvements in or relating to friction clutches and to engaging load applying spring means for such friction clutches. 3,758,094, Cl. 267-162.000.

Cuckson, Eric Engel; and Jones, Arthur Llewelyn, to Scovill Manufacturing Company. Slide fastner of the invisible type. 3,757,391, Cl. 24-205.10r.

Culbertson, Thomas L., to United States of America, Navy. Horizontal bottom-freezing apparatus. 3,757,854, Cl. 165-106.000.

Cull, Neville L.: *See—*
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Dahl, Norman C.; and Tabor, Joseph A. Method of forming a nut. 3,757,372, Cl. 10-86.00r.
Dahl, Norman C. Fixed force level bolt. 3,757,630, Cl. 85-62.000.
Daicel Ltd.: *See—*
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Daman, Leonard Salisbury, to Deere & Company. Heat-exchanger for power plants, especially motor vehicles. 3,757,853, Cl. 165-76.000.
Damijonatis, Algis; and Wiley, Daryl D., to Motorola, Inc. Magnetic tachometer pickup. 3,758,859, Cl. 324-174.000.
Damm, David A., to Owens-Illinois, Inc. Memory system having two clock pulse frequencies. 3,757,940, Cl. 209-74.00m.
Danfoss A/S: *See—*
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Daniel, Roger P., to Ford Motor Company. Crash dummy chest structure. 3,757,431, Cl. 35-17.000.
Danree, Bernard: *See—*
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Darnell, Wayne Lee. Toy gun with rotating magazine for discharging elastic bands. 3,757,760, Cl. 124-19.000.
Dastur, Kavsy D., to Du Pont de Nemours, E. I., and Company. Reduction of microorganism populations of food articles by contact with a liquid chlorohydrocarbon. 3,758,257, Cl. 426-331.000.
Data Card Corporation: *See—*
Drillick, Jacob H., 3,757,684.
Datta, Arthur S.: *See—*
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Datye, Keshav V.; and Milicevic, Branimir, to Ciba-Geigy AG. Process for dyeing hydrophobic textile material. 3,758,272, Cl. 8-172.000.
Dauben, Dwight L.: *See—*
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Daval, Jacques; and Forrat, Francis, to Commissariat a l'Energie Atomique. Interferometric modulator for use in natural light. 3,758,194, Cl. 350-160.00r.
David, Harry; and Rudszinat, Willy, to Hauni-Werke Korber & Co. KG. Apparatus for classifying fragments of tobacco. 3,757,800, Cl. 131-109.00b.
Davis, Darwin Darrell, to du Pont de Nemours, E. I., and Company. Process for preparation of straight chain alkane dicarboxylic acids. 3,758,564, Cl. 260-531.00r.
Davis, Haggai; and Robertson, Robert S., to Snub-R-Rig Corporation. Apparatus for moving pipe into and out of a well. 3,757,858, Cl. 166-77.000.
Davy and United Engineering Company, Limited: *See—*
Howard, David Robert, 3,758,040.
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Vogel, Jean-Luc; De Bernardi, Jacques Francois Dominique; and Moulinard, Claude, 3,757,597.
De Jager, Frank; Zegers, Leo Eduard; and Verhoeckx, Nicolaas Alphonsus Maria, to U.S. Philips Corporation. System for the transmission of information at very low signal-to-noise ratios. 3,758,861, Cl. 325-38.00r.
De Jongh, Job Harn; Maenhout, Johannes Josephus Aloisius Cornelus; and Osenbruggen, Cornelis Van, to U.S. Philips Corporation. Apparatus for removing material from an electrically conducting workpiece. 3,758,739, Cl. 219-69.00g.
De Kiss, Nicholas, to De Laval Turbine Inc. Reciprocatory fluid actuated motor having a rack and pinion piston locking mechanism. 3,757,650, Cl. 92-25.000.
De Laval Turbine California, Inc.: *See—*
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De Laval Turbine Inc.: *See—*
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Dean, Frank J., Jr., to Tempmaster Corporation. T-bar mounted air diffuser. 3,757,668, Cl. 98-40.00d.
Dean, Jimmie L., to Phillips Petroleum Company. Grasping parison preform at right angle to mold parting line. 3,758,254, Cl. 425-387.00b.
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Deegen, Axel W., to International Business Machines Corporation. Apparatus for making flat cables by extrusion. 3,758,247, Cl. 425-114.000.
Deem, William Roy, to Imperial Chemical Industries, Limited. Production of tetrafluoroethylene oligomers. 3,758,618, Cl. 260-653.100.
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Delavarenne, Serge Yvou, to Union Carbide Corporation. Process for producing fluorinated cyclic ketals. 3,758,510, Cl. 260-340.900.
Dellian, Kurt A., to Ciba-Geigy Corporation. Fixation of leuco vat ester dyes by electrical current. 3,758,394, Cl. 204-134.000.
Deming, Joseph A.; Heffron, Allen J.; and Estry, Arthur L., to C. M. Systems, Incorporated and Crankshaft Machine Company. Single spindle crankshaft machine. 3,757,615, Cl. 82-9.00r.
Demurger, Jacques L. J. Saw blade made from W-Cr-W-Mo-containing tool steel. 3,758,297, Cl. 75-126.00c.
Denda, Rokuro; and Kawaguchi, Toshio, to Kuraray Co., Ltd. Method of removing aldehydes. 3,758,611, Cl. 260-681.50r.
Denki Onkyo Co., Ltd.: *See—*
Horikawa, Hideichi; Katayama, Shitomi; and Masuda, Noboru, 3,758,636.
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Setzer, Henry J.; and Thompson, George S., 3,758,043.
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Derfer, John M.: *See—*
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DeYoung, Simon Arden, to Kaig Machine Products, Inc. Spool release mechanism. 3,757,904, Cl. 188-823.000.
Di Ianni, Daniel; and Brackmann, Warren A., to Rothmans of Pall Mall Canada Limited. Tobacco reclaiming method and apparatus. 3,757,799, Cl. 131-96.000.
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Di Prospero, Peter. Pollution control device. 3,757,708, Cl. 110-8.00r.
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Berkowitz, Lawrence; Novickis, Georgs; and Sheth, Prafulchandra N., 3,757,946.

Diddens, Paul A., to Honeywell Inc. Fast recovery circuit for AC amplifier. 3,758,872, Cl. 330-185.000.

Diez, Adolf; and Heim, Josef, to Schmidt, Karl, GmbH. Low-pressure casting apparatus. 3,757,850, Cl. 164-309.000.

Digilux Corporation: *See*—
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Dinbergs, Kornelius, to Goodrich, B.F., Company, The. Stabilization of dimethylformamide. 3,758,577, Cl. 260-561.00r.

Dinella, Donald; and Kenney, John Thomas, to Western Electric Company, Incorporated. Method of metal coating an epoxy. 3,758,332, Cl. 117-47.00a.

Dinn, Neil Francis, to Bell Telephone Laboratories, Incorporated. Circuit for incrementally phasing digital signals. 3,758,720, Cl. 178-67.000.

Dionne, William R.; and Blanc-Brude, Philippe, to Heath Company. Method of and apparatus for determining a tuned frequency. 3,758,853, Cl. 324-78.00d.

Ditscheid, Hans Leo, to Felten & Guilleaume Kabelwerke Aktiengesellschaft. Insulating space for high-frequency coaxial cables and electrical fittings associated with it. 3,758,700, Cl. 174-28.000.

Dixie Yarns, Inc.: *See*—
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Dochterman, Richard W.; and Wendt, Michael E., to General Electric Company. Dynamoelectric machine. 3,758,799, Cl. 310-89.000.

Doerge, Herman P.; and Wismer, Marco, to PPG Industries, Inc. Unsaturated polyesters with reduced smoke levels. 3,758,638, Cl. 260-865.000.

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Domenico, Penelope B., to Dow Chemical Company, The. Halopyridyl thiocyanates. 3,758,482, Cl. 260-294.80g.

Doniguian, Thaddeus M., to I.M.I., division of Becton, Dickinson and Company. Fluid sensor. 3,758,398, Cl. 204-195.00p.

Doty, Richard L.: *See*—
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Dougherty, John S., to Allied Products Corporation. Curtain wall safety panel. 3,757,471, Cl. 49-2.000.

Douglas, Donald J. Wind actuated devices. 3,757,730, Cl. 116-28.000.

Douglas, Donald J., to Nu-Pro, Inc. Jumping reflex-reflection. 3,758,190, Cl. 350-97.000.

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Dowling, Donald J., to Texaco Inc. Method and system with voltage cancellation for measuring the magnetic susceptibility of a subsurface earth formation. 3,758,847, Cl. 324-6.000.

Dowling, Donald J., to Texaco Inc. Magnetic susceptibility well logging system and method with automatic null control. 3,758,848, Cl. 324-6.000.

Downing, John Charles. Sleeping pillow. 3,757,364, Cl. 5-338.000.

Doyle, Edward J.; and Bagwell, Richard S., Jr., to Schick Incorporated. Product dispenser and heater. 3,758,002, Cl. 222-146.0ha.

Doyle, Michael A.; Cree, Roger W.; and Keller, Richard C., to Control Data Corporation. Cooling system for data processing apparatus. 3,757,530, Cl. 62-117.000.

Doyle, Michael D.; and Bahne, William L., Jr. Single snow ski. 3,758,127, Cl. 280-11.13s.

Drackett Company, The: *See*—
Mack, Frank J., 3,758,000.

Drain, James Joseph: *See*—
Henderson, Norman Leo; Bruno, August Joseph; and Drain, James Joseph, 3,758,680.

Drazick, Herman J. Injection plastic feeder. 3,758,248, Cl. 425-145.000.

Dreis & Krump Manufacturing Company: *See*—
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Dreismann, Robert: *See*—
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Drillick, Jacob H., to Data Card Corporation. High speed automatic card embosser. 3,757,684, Cl. 101-18.000.

Drum, Harvey R.; Witherill, Jeffry L.; and Rennwald, Fredrick H. Mechanical pickup device for animal droppings. 3,757,737, Cl. 119-1.000.

Du Pont de Nemours, E. I., and Company: *See*—
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Du Pont of Canada Limited: *See*—
Pounder, Maurice George; and Wilkins, Kenneth Ross, 3,758,545.

Dual Manufacturing and Engineering, Incorporated: *See*—
Re, Frank Manuel, 3,758,151.

Dugger, William H.; and Alexander, Wayne K., to International Telephone and Telegraph Corporation. Depositing apparatus. 3,757,833, Cl. 141-186.000.

Duncan, James E. Roof standing water eliminator. 3,757,812, Cl. 137-142.000.

Duncan, William A.: *See*—
Murfree, James A.; Sandlin, Billy J.; and Duncan, William A., 3,757,520.

Dunhill Lighters Limited: *See*—
Harris, Anthony Roberts, 3,758,262.

Dunning, William S. Electromagnetic suspended speaker. 3,757,890, Cl. 181-31.00b.

Dupy, Jerome N. Apparatus for scarfing weld beads. 3,758,740, Cl. 219-67.000.

Durling, Hubert R., Jr.: *See*—
Bennett, Clarence Leonard, Jr.; De Lorenzo, Joseph D.; and Durling, Hubert R., Jr., 3,757,501.

DuRocher, Daniel J.: *See*—
DuRocher, Gideon A.; and DuRocher, Daniel J., 3,758,733.

DuRocher, Gideon A.; and DuRocher, Daniel J., to Essex International, Inc. Pressure sensitive stepping switches with multi layer spring contact assembly with interposed layers of lubricated nonconductive elastomeric material and conductive particles theren. 3,758,733, Cl. 200-82.00r.

Dussy, Paul: *See*—
Ackermann, Hans; Seiler, Herbert; and Dussy, Paul, 3,758,470.

Dutton, Vance D.: *See*—
Thompson, George J.; and Dutton, Vance D., 3,757,959.

Dyckerhoft & Widmann Aktiengesellschaft: *See*—
Finsterwalder, Ulrich; Finsterwalder, Klemens; and Herbst, Thomas, 3,757,528.

Dyer, John, to FMC Corporation. Low D.P. high D.P. viscose mixture using high cellulose concentration. 3,758,458, Cl. 260-212.000.

Dymo Industries, Inc.: *See*—
Pedersen, Dane Harald, 3,757,919.

Dynair Limited: *See*—
Elmer, Arthur Ernest Henry, 3,757,914.

Dynamit Nobel Aktiengesellschaft: *See*—
Betke, Erich, 3,757,373.
Wienand, Michael, 3,758,655.

Ealkenberg, Dieter; Renner, Theodor; Rittmayer, Gerhard; and Winkler, Josef, to Siemens Aktiengesellschaft. Thermoelectric generator. 3,758,346, Cl. 136-202.000.

Earl, Robert Brooks: *See*—
Crawford, David Lee; Earl, Robert Brooks; and Monroe, Roger F., 3,757,864.

East Dayton Tool & Die Company, The: *See*—
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Eastman Kodak Company: *See*—
Albrecht, Richard E.; and Reeder, Terrence L., 3,757,653.

Bailey, Joseph; Heath, Bushey; Knott, Edward B.; and Marr, Peter A., 3,758,309.
Baitsholts, Albert D.; Jackobs, Nancy E.; and Timrots, Imants, 3,757,952.
Beavers, Leo E.; Lau, Philip T. S.; and Salminen, Ilmari F., 3,758,308.
Cohen, Hyman L.; King, James R., Jr.; and Minsk, Louis M., 3,758,445.
Fisher, John G.; and Coates, Clarence A., Jr., 3,758,466.
Fumia, Arthur, Jr.; and Brooker, Leslie G. S., 3,758,461.
Grum, Frank; Przybylowicz, Edwin Paul; Costa, Lorenzo Federico; and Miller, Raymond Sumner, 3,758,412.
Harvey, Donald M., 3,758,209.
Jenkins, Philip W., 3,758,465.
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Stoneham, Jeffrey R., 3,757,658.
Virkhaus, Rein, 3,758,495.
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Fauran, Claude P.; Eberle, Jeannine A.; Raynaud, Guy M.; and Bailly, Yves G., 3,758,459.

Eberly, Paul E., Jr.; Cull, Neville L.; and Buchamann, Fred J.; deceased (by Buchmann, Cordelia Atkeson; legal representative and heir), to Esso Research and Engineering Company. Aromatization catalyst and process. 3,758,600, Cl. 260-673.500.

Ebert, David F. Instructional and amusement device. 3,758,693, Cl. 35-8.00r.

Eck, Herbert; Heckmaier, Josef; and Spes, Hellmuth, to Wacker-Chemie G.m.b.H. Process for producing methylene malonic esters. 3,758,550, Cl. 260-485.00r.

Eckardt, J. C., AG: *See—*
Rolff, Jacob J. P.; and Di Marco, Franco, 3,757,576.

Edelman, Irving, to Maidrite Novelty Corporation. Apparatus for the manufacture of laminated shoulder strap material. 3,758,364, Cl. 156-463.000.

Edenhofer, Albrecht, to Hoffman-La Roche Inc. Tetrahydropyridine derivatives. 3,758,483, Cl. 260-295.0am.

Edwards, Hugh Jeremy Willis, to C.C.L. Systems Limited. Anchorage assembly for prestressing cables. 3,757,390, Cl. 24-126.000.

Edwards, James B.: *See—*
Woodie, Paul E.; and Edwards, James B., 3,757,685.

Edwards, John A., to Syntex Corporation. Preparation of C-17α alkyl substituted propadienyl steroids. 3,758,517, Cl. 260-397.400.

Eheim, Franz, to Bosch, Robert, G.m.b.H. Fuel injection pump for multi-cylinder internal combustion engines. 3,758,241, Cl. 417-494.000.

Eich, Edmund; Muller, Walter; and Freitsch, Bruno. Device for the automatic replacement and adjustment of tool carriers, more particularly angular milling heads on the milling support of a machine tool. 3,757,637, Cl. 90-17.000.

Eichinger, John W., to Gulf & Western Industrial Products Company. Closure member for metal containers and method of assembly. 3,757,986, Cl. 220-39.00r.

Eig, Lev Samuilovich: *See—*
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich; Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.

Eimers, Erich; Rudolph, Hans; and Kloker, Werner, to Bayer Aktiengesellschaft. Polyesters containing tertiary nitrogen atoms. 3,758,556, Cl. 260-485.00g.

El Chico Corporation: *See—*
Pomara, Johnny B., Jr., 3,757,676.

Electric Char-B-Que, Inc.: *See—*
Warshauer, Martin; and Sher, Harold, 3,757,671.

Electrical Fitting Corporation: *See—*
Shemtov, Sami, 3,757,408.

Elek, Sandor: *See—*
Kaszireiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, 3,758,546.

Elfes, Lee Eugene; and Lorenz, John, to Massey-Ferguson, Inc. Tractor counter weight assembly. 3,758,132, Cl. 280-150.00e.

Elias, William: *See—*
Waybright, George Cleveland; and Elias, William, 3,758,812.

Elion, Gertrude B.; and Strelitz, Robert A., to Burroughs Wellcome Co. and Wellcome Foundation, Ltd. Treating DNA virus infections with amino purine derivatives. 3,758,684, Cl. 424-180.000.

Elliot, David R.: *See—*
Prindle, Herghel B.; McElreath, Jack A.; and Elliot, David R., 3,758,464.

Elliott, Franklin P., to Honeywell Inc. Flash apparatus with automatic light termination using a number of storage capacitors. 3,758,817, Cl. 315-151.000.

Ellsworth, James P.; and Majcher, John, to Westinghouse Electric Corporation. Multi-pole circuit breaker with single trip adjustment for all poles. 3,758,887, Cl. 335-8.000.

Elmer, Arthur Ernest Henry, to Dynair Limited. Fan drives. 3,757,914, Cl. 192-48.300.

Elonanta, Vaito K.; and Ruggles, Benjamin C., to Polaroid Corporation. Manually operable film-advancing apparatus. 3,757,657, Cl. 95-13.000.

Eltze, Ulrich: *See—*
Forster, Hans-Jaochim M.; and Eltze, Ulrich, 3,757,606.

Emerson Electric Co.: *See—*
Newport, Harry E., Jr.; and Wright, James A., 3,758,260.

Emold, Harry G., to Relaxaway, Inc. Chair with U-shaped wooden support beams. 3,758,149, Cl. 297-259.000.

Engebretsen, Einar; and Grunewald, Ernst, to Hobart Manufacturing Company, The. Compactor drive chain tensioning apparatus. 3,757,683, Cl. 100-229.00a.

Engesser, Rudolf, to Oxy Metal Finishing Corporation, mesne. Method of producing chemical conversion coatings on metal surfaces. 3,758,349, Cl. 148-6.150z.

Engrenager et Reducteurs (Engrenages Citroen et Etablissements R. Messian reunis: *See—*
Messian, Philippe R., 3,757,902.

Ennis, Philip James; and Parry, Philip James, to International Nickel Company, Inc., The. Chromium-nickel alloys and articles and parts made therefrom. 3,758,299, Cl. 75-171.000.

Environment/One Corporation: *See—*
Ludewig, Frederick A., Jr., 3,757,583.

Envirotech Corporation, mesne: *See—*
Hoon, Harry E., Jr., 3,758,087.

Eppich, Robert E., to General Motors Corporation. Method of producing graphitic aluminum castings. 3,758,298, Cl. 75-138.000.

Epsco Incorporated: *See—*
Miller, Herbert E., 3,758,873.

Erdmann, Otto: *See—*
Kruse, Friedel; Wahle, Gunter; Rudszinat, Willy; and Erdmann, Otto, 3,757,624.

Ergene, Mehmet T., to Stanley Works, The. Method for forming foamed concrete structures. 3,758,319, Cl. 106-88.000.

Erickson, John W.; and Brown, Francis Barton, to Kobe, Inc. Free turbine pump. 3,758,238, Cl. 417-408.000.

Eriksson, Erik Edvin: *See—*
Asberg, Sture Lennart; and Eriksson, Erik Edvin, 3,758,180.

ESB Incorporated: *See—*
Magritz, Steven A., 3,758,343.
Shankir, Irvin P., 3,757,789.

Eskeli, Michael. Reaction rotor turbine. 3,758,223, Cl. 415-1.000.

Eskridge, Wade A.: *See—*
Poyner, Weston R.; Stallbaumer, Richard J.; and Eskridge, Wade A., 3,757,524.

Essex International, Inc.: *See—*
DuRocher, Gideon A.; and DuRocher, Daniel J., 3,758,733.

Esso Production Research Company: *See—*
Crocker, Charles W.; and Barton, Charles E., 3,757,580.

Esso Research and Engineering Company: *See—*
Bunting, William M.; and Langer, Arthur W., Jr., 3,758,585.
Cohen, Abraham D., 3,758,625.
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Harting, Cary L., 3,758,407.
Horowitz, Hugh H.; and Jahnig, Charles E., 3,758,606.
Horowitz, Hugh H.; and Ruhle, Helmut W., 3,758,607.
Kramer, George M., 3,758,623.
Langer, Arthur W., Jr.; Whitney, Thomas A.; and Klemann, Lawrence P., 3,758,580.
Mertweiller, Joseph K.; and Tenney, Horace M., 3,758,614.
Owen, Keith; and Roberts, Geoffrey A. H., 3,758,282.
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Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, 3,758,268.

Estry, Arthur L.: *See—*
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Etat Francais: *See—*
Vogel, Jean-Luc; De Bernardi, Jacques Francois Dominique; and Moulinard, Claude, 3,757,597.

Etat Francais represente par le Ministre Charge de la Defense Nationale: *See—*
Maue, Bertrand Yves Hiffolyte; and Omer, Grebert Robert Emmanuel, 3,757,692.

Etchell, Gordon; and Washchynsky, Bohdan, to North American Rockwell Corporation. Printing cylinder. 3,757,691, Cl. 101-415.100.

Ethyl Corporation: *See—*
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Wood, James M., Jr., 3,758,289.

Etudes et Fabrications Aeronautiques: *See—*
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Eue, Ludwig: *See—*
Metzger, Carl; Rucker, Dietrich; and Eue, Ludwig, 3,758,492.

European Atomic Energy Community (Euratom): *See—*
Combet, Michel, 3,758,766.

Evans, Francis W.: *See—*
Litt, Morton H.; and Evans, Francis W., 3,758,538.

Evans, James P.; and Avey, William R., Jr. Rachet type speed wrench. 3,757,614, Cl. 81-119.000.

Evanshen, John, to Teep Toxic Control Ltd. Pollution control. 3,757,489, Cl. 55-74.000.

Everhart, Charles T., to San/Bar Electronics Corporation. Line card circuit for dual station control. 3,758,729, Cl. 179-99.000.

Everitt, Scott F., to Acoustic Fiber Sound Systems Inc. Sound reproduction system. 3,757,889, Cl. 181-31.001.

EVG Entwicklungs- und Verwertungsgesellschaft m.b.H.: *See*—
Ritter, Klaus; Gott, Hans; and Zechner, Gottfried, 3,757,552.

Eyb, Wolfgang, to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Headlight for vehicles, especially motor vehicles. 3,758,772, Cl. 240-7.10a.

Eyelet Speciality Company: *See*—
Pfrommer, John W.; and Geisel, Robert C., 3,758,218.

Fabbri, John A. Foam cutting apparatus. 3,757,617, Cl. 83-1.000.

Fairbanks, Theodore H., to FMC Corporation. Foraminous structures. 3,758,372, Cl. 161-109.000.

Falcon Safety Products, Inc.: *See*—
Pappas, Michael; Witte, Paul A.; and Johnson, Thomas, 3,757,731.

Falk, Robert Allan; and Kleiner, Eduard Karl, to Ciba-Geigy Corporation. Free radical polymerization using perfluoroalkyl mercaptans as chain transfer agents. 3,758,447, Cl. 260-78.50b.

Fallwell, William F., Jr., to Monsanto Company. Ethylene/vinyl chloride/N-methylol acrylamide. 3,758,429, Cl. 260-17.400.

Fally, Jacques; Richez, Jacques; Lasnf, Claude; and Lazennec, Yvon, to Compagnie Generale d'Electricite. Sodium-sulphur accumulator with temperature controlling means. 3,758,337, Cl. 136-6.0fs.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See*—
Freitag, Gerhard, 3,758,438.
Jastrow, Horst; Lederer, Michael; and Heiskel, Elmar, 3,758,425.
Pfuller, Peter; and Kuhn, Wenzel, 3,758,498.
Rippel, Robert; Ruschig, Heinrich; Lindner, Ernst; and Orr, Manfred, 3,758,476.

Fardeau, Joseph A.: *See*—
Haythornthwaite, James; and Fardeau, Joseph A., 3,757,402.

Farris, Robert E.; and Hicks, James C., to Kaiser Aluminum & Chemical Corporation. Production of mullite refractory. 3,758,318, Cl. 106-65.000.

Fauran, Claude P.; Eberle, Jeannine A.; Raynaud, Guy M.; and Bailly, Yves G., to Delalande S.A. Novel derivatives of 1-cinnamyl benzimidazole, their process of preparation and their therapeutic application. 3,758,459, Cl. 260-240.00k.

Fauth, Frederick E., to American Bottlers Equipment Company. Thread forming capping head. 3,757,487, Cl. 53-334.000.

Feather, Peter: *See*—
Burgess, Colin M.; Feather, Peter; and Goatly, Philip H., 3,758,521.

Feibel, William: *See*—
Goodman, Carol C.; and Feibel, William, 3,758,695.

Feigin, Robert: *See*—
Bartsch, Friedrich F.; and Feigin, Robert, 3,758,269.

Feit, Peter Werner; and Nielsen, Ole Bent Ivaermose, to Lovens Kemiske Fabrik Produktionsaktieselskab. Certain sulfamylbenzoic acids, esters thereof, and pharmaceutically acceptable salts thereof. 3,758,522, Cl. 260-397.700.

Feldmuhle Anlagen- und Produktionsgesellschaft mit beschrankter Haftung: *See*—
Berger, Dieter; Hahnlein, Eberhard; and Seeliger, Horst, 3,758,378.

Felten & Guilleaume Kabelwerke Aktiengesellschaft: *See*—
Ditscheid, Hans Leo, 3,758,700.

Fenner, Robert M.; and Harris, Jack R. Gymnastic training aid for a side horse. 3,758,110, Cl. 272-64.000.

Ferag AG: *See*—
Reist, Walter, 3,757,514.

Ferdrowitz, Wilhelm: *See*—
Kurth, Johannes; and Glaser, Josef, 3,757,405.

Fernander, Bill: *See*—
Miller, Harmon B., III; Fernander, Bill; and Hanson, Larry, 3,757,443.

Fester, Keith E.; and Doty, Richard L., to Medtronic, Inc. Electrochemical cell with stepped voltage output. 3,757,793, Cl. 128-419.00p.

Fet, Yakov Iliich: *See*—
Kantorovich, Leonid Vitalievich; Tolstiev, Valery Petrovich; and Fet, Yakov Iliich, 3,758,767.

Feuerlein, Karl: *See*—
Kreissig, Ernst Florian; and Feuerlein, Karl, 3,757,702.

Feurston, Ludwig J.; and Koehn, Frederick F. Apparatus for packing objects in a carton. 3,757,486, Cl. 53-162.000.

Fevre, Charles M., to Societe Stephanoise de Constructions Mecaniques. Braking arrangement for a rotable body mounted on fluid bearings. 3,757,905, Cl. 188-170.000.

Fiber Industries, Inc.: *See*—
Vizurraga, Louis, 3,758,535.

Fife, Rodger L., to Georgia-Pacific Corporation. Treated paper sheet. 3,758,377, Cl. 162-163.000.

Figov, Murray: *See*—
Islam, Rafiqul; Garnish, Sidney G.; Figov, Murray; and Mustacchi, Henry, 3,758,307.

Fijalkowski, Joseph J., to Harper-Wyman Company. Gas fired cooker ignition system. 3,758,264, Cl. 431-191.000.

Findeisen, Kurt; and Warner, Kuno, to Bayer Aktiengesellschaft. Process for the production of acylisocyanide dichlorides and carboxylic acid chlorides. 3,758,570, Cl. 260-544.00c.

Finsterwalder, Klemens: *See*—
Finsterwalder, Ulrich; Finsterwalder, Klemens; and Herbst, Thomas, 3,757,528.

Finsterwalder, Ulrich; Finsterwalder, Klemens; and Herbst, Thomas, to Dyckerhoft & Widmann Aktiengesellschaft. Method for producing a bearing pile of reinforced concrete. 3,757,528, Cl. 61-53.520.

Firestone Tire & Rubber Company, The: *See*—
Werner, Byron H.; and Hayes, Robert A., 3,758,631.

Fischbein, Irwin W., to Gillette Company, The. Apparatus for processing razor blades. 3,757,734, Cl. 118-49.500.

Fischer, Adolf: *See*—
Zeidler, Adolf; Kiefer, Hans; Fischer, Adolf; Hoffmann, Hans-Dieter; and Merger, Franz, 3,758,477.

Fischer Holdings Ltd.: *See*—
Fischer, Karl Otto Paul, 3,758,385.

Fischer, Karl Otto Paul, to Fischer Holdings Ltd. Process for coking lignitic coal. 3,758,385, Cl. 201-6.000.

Fischer, Stephen J., to United States of America, Navy. Control surfaces for submersible vehicles. 3,757,720, Cl. 114-16.00f.

Fischer, William K., to Uniroyal, Inc. Thermoplastic blend of partially cured monoolefin copolymer rubber and polyolefin plastic. 3,758,643, Cl. 260-897.00a.

Fisher, Delbert P. Mechanical latch assembly for brake system. 3,757,908, Cl. 188-265.000.

Fisher, Evan D., to United States of America, Army. Charging system for electric bomb fuzes (U). 3,757,695, Cl. 102-70.20g.

Fisher, James Glenn, to NVF Company. Bumper lift hook. 3,758,077, Cl. 254-133.000.

Fisher, John G.; and Coates, Clarence A., Jr., to Eastman Kodak Company. Pyrrole methine cationic dyes. 3,758,466, Cl. 260-240.00e.

Fisher, John Richard: *See*—
Broeck, James Samuel Ten, Jr.; Perry, Robert Bruce; Laurance, Dale Roderic; and Fisher, John Richard, 3,758,457.

Flanigan, James C. Impact Tool. 3,757,409, Cl. 29-254.000.

Flank, William H., to Air Products and Chemicals Inc. Offretite synthesis from minerals. 3,758,539, Cl. 252-455.00z.

Flores, Robert Joseph, to Sherwin-Williams Company, The. Manufacture of pigments. 3,758,320, Cl. 106-288.00q.

Fluid Chemical Company, Inc.: *See*—
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Fluidtech Corporation: *See*—
Osheroff, Gene W., 3,758,030.

Flury, Karl A., to Heberlein & Co. Hardness tester for tablets. 3,757,566, Cl. 73-78.000.

FMC Corporation: *See*—
Berkowitz, Sidney; Cohen, Milton A.; and Yochum, Paul R., 3,758,463.
Dyer, John, 3,758,458.
Fairbanks, Theodore H., 3,758,372.
Hopper, Theodore R., 3,758,432.

Fodor, Lawrence M., to Phillips Petroleum Company. Thermosetting compositions containing monomeric hydroxyalkyl acrylic ester and polymer of acrylonitrile. 3,758,439, Cl. 260-41.00r.

Foote, James B.: *See*—
Allgeyer, Guy H.; and Foote, James B., 3,757,704.

Footway Fasteners, Inc.: *See*—
Schuplin, Jerome T., 3,758,060.

Ford Motor Company: *See*—
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Labana, Santokh S.; and Theodore, Ares N., 3,758,632.
Labana, Santokh S.; Golovoy, Amos; and Newman, Seymour, 3,758,633.
Labana, Santokh S.; and Newman, Seymour, 3,758,634.
Labana, Santokh S.; Chang, Yun Feng; and Theodore, Ares N., 3,758,635.

Fordyce, Homer E., to Marley Company, The. Hyperbolic cross flow cooling tower with basins and fill integrated into shell. 3,758,088, Cl. 261-111.000.

Formica Corporation: *See*—
Chisholm, James Edwards; Hicks, Clark Thomas; and Buonaura, Anthony, 3,757,358.

Forni, Lucio, to Societa Italiana Resine S.p.A. Process for producing catalysts for dimerization propylene. 3,758,416, Cl. 252-447.000.

Forrat, Francis: *See*—
Daval, Jacques; and Forrat, Francis, 3,758,194.

Forster, Hans-Jaochim M.; and Eltze, Ulrich, to Daimler-Benz Aktiengesellschaft. Apparatus for the automatic shifting of change-speed transmissions, especially of motor vehicles. 3,757,606, Cl. 74-733.000.

Forster, Hans-Joachim M.; Katz, Klaus; and Abt, Reinhold, to Daimler-Benz Aktiengesellschaft. Servo steering for vehicles. 3,757,602, Cl. 74-499.000.

Fortmann, Karl L., to Pennwalt Corporation. Preparing of baked goods with coated salt. 3,758,311, Cl. 99-90.00r.

Foster Grant Co., Inc.: *See*—
Lang, Theo O.; and Lane, Thomas A., 3,758,371.

Foth, Seigfried: *See*—
Strauss, Edmar; Foth, Seigfried; and Kaltschmidt, Hans-Jurgen, 3,758,706.

Fougere, Guy Lloyd. Method and apparatus for coin discrimination utilizing a coin impeller. 3,757,918, Cl. 194-101.000.

Foulletier, Louis, to Ugine Kuhlmann. Polyfluorinated aminoalcohols. 3,758,587, Cl. 260-584.00r.
Fowler, Richard Thomas, to Girling Limited. Coupling means for hydraulic brake systems. 3,758,164, Cl. 303-7.000.
Fox Harry Alvin, Jr.: *See—*
Fritz, William Baird; Sanders, Neil Harrison; Reyner, Emerson Marshall, II; and Fox Harry Alvin, Jr., 3,757,415.
Fox Products Company: *See—*
Medlar, Lewis A., 3,758,839.
Fox, Ralph G., Jr., to General Motors Corporation. Rotary machine apex seal. 3,758,243, Cl. 418-76.000.
Foxboro Company, The: *See—*
Bowditch, Hoel L., 3,758,093.
Fram Filters Ltd.: *See—*
Holker, Richard John, 3,757,752.
Frank, Charles E.: *See—*
Murib, Jawad H.; Frank, Charles E.; and Seeskin, Ben, 3,758,551.
Frattarola, Joseph Ralph, to RCA Corporation. Method of manufacturing holographic replicas. 3,758,649, Cl. 264-1.000.
Fraueglass, Elliott; and Cass, William E., to Loctite Corporation. Air-impermeable surfaces coated with an adhesive composition. 3,757,828, Cl. 138-145.000.
Fraze, Ermal C.: *See—*
Brown, Omar L., 3,757,989.
Fre-Bar Inc.: *See—*
Barton, Frederic D., 3,757,984.
Freeman, Harry. Therapeutic bed pan. 3,757,356, Cl. 4-112.000.
Freitag, Gerhard, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of filaments and fibers having a metallic golden shade from polyesters. 3,758,438, Cl. 260-40.00p.
Freitsch, Bruno: *See—*
Eich, Edmund; Muller, Walter; and Freitsch, Bruno, 3,757,637.
Fremont, Henry A., to U.S. Plywood-Champion Papers, Inc. Color removal from kraft mill aqueous effluents. 3,758,405, Cl. 210-23.000.
French, John Lischer; Kessler, Kenneth Quentin; Funk, Welker W.; Pierrot, Victor Charles, III; and Hiseler, Stanley Robert, to Deere & Company. Self-propelled tree delimber. 3,757,837, Cl. 144-2.00z.
Fresard, Marcel; and Jimenez, Antonio, to Mefina S.A. Ironing press. 3,757,440, Cl. 38-17.000.
Frevel, Ludo K.; and Kressley, Leonard J., to Dow Chemical Company, The. Removal of carbon monoxide from air. 3,758,666, Cl. 423-247.000.
Frey, Sydney W., Jr., to Bourns, Inc. Digital-indicating knob-enclosed multi-turn potentiometer. 3,757,732, Cl. 116-115.000.
Frick, Richard H., to Kimberly-Clark Corporation. Apparatus for forming disposable diapers. 3,758,363, Cl. 156-383.000.
Fried, John H.: *See—*
Nelson, Peter H.; Unich, Karl G.; and Fried, John H., 3,758,583.
Fried. Krupp Gesellschaft mit beschrankter Haftung: *See—*
Arndt, Karl-Friedrich; and Nafe, Helmar, 3,757,613.
Heinz, Winfried; Schwarz, Wilhelm; and Tromp, Henricus, 3,758,091.
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Friedl, Wendel M.: *See—*
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Fries, Bernard J., to Steelcase, Inc. Chair. 3,758,157, Cl. 297-300.000.
Frish, William G. Palletizing apparatus. 3,757,971, Cl. 214-8.50k.
Fritz, William Baird; Sanders, Neil Harrison; Reyner, Emerson Marshall, II; and Fox Harry Alvin, Jr., to AMP Incorporated. Method of making a monolithic multiaperture core devices. 3,757,415, Cl. 29-604.000.
Frohardt, Esther E.; and Frohardt, Melvin W. Illuminated wig. 3,758,771, Cl. 240-6.40w.
Frohardt, Melvin W.: *See—*
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Frohne, Johann-Christian; Hohmann, Ernst; and Schneider, Werner, to Scholven-Chemie Ag. Gesenkirchen-Buer. Apparatus for determining the melt index of plastics. 3,758,776, Cl. 250-23.000.
Fromm, Kenneth N., to International Telephone and Telegraph Corporation. Pulse repetition frequency determination system. 3,758,856, Cl. 324-78.00r.
Frydenberg, Donald V., to Clary Corporation. Device for marking locations of structural elements. 3,757,422, Cl. 33-76.00r.
Fucci, Michael L.: *See—*
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Fuhrmann, Robert; Sifniades, Stylianos; and Tunick, Allen Abraham, to Allied Chemical Corporation. Process for the manufacture of ketone derivatives. 3,758,581, Cl. 260-566.00a.
Fujita, Kinji, to Kabushiki Kaisha Suwa Seikosha. Chronograph timepiece using digital display. 3,757,509, Cl. 58-23.00r.
Fujita, Yasuhiro; and Morimoto, Teijiro, to Mitsui Petrochemical Industries, Ltd. Process for preparation of β-cyanoethyl esters of carboxylic acids. 3,758,526, Cl. 260-404.000.
Fujiwara, Katsuji. Disk type electromagnetic valve. 3,757,821, Cl. 137-625.480.
Fukazawa, Nobuo: *See—*
Aya, Masahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Morishima, Norihisa, 3,758,481.
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Funk, Welker W.: *See—*
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G & W Electric Specialty Company: *See—*
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Smith, Edward A., 3,757,957.
Gagne, Archie R. Slit trenching machine with orbital motion plow. 3,757,869, Cl. 172-40.000.
Gagnon, Robert A. Toy road grader. 3,757,464, Cl. 46-244.00a.
Gaj, Bernard J.; and Sello, Stephen B., to Stevens, J. P., & Co., Inc. Phosphorus-containing carbamates. 3,758,554, Cl. 260-482.00b.
Galbraith, Donald C.: *See—*
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Galliano, Bruno J., Jr. Atomizing burner. 3,758,261, Cl. 431-116.000.
Galtsov, Vladimir Vasilievich: *See—*
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich; Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.
Games, John F.; and Wyrostek, Albert J., to United Aircraft Corporation. Rotational statistical vibration analysts employing sidebands and/or weighting. 3,758,758, Cl. 235-151.300.
Ganser, Hans Gunther: *See—*
Schroder, Johann; Ganser, Hans Gunther; and Oepen, Heinrich, 3,758,827.
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Garnish, Sidney G.: *See—*
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Garrett Corporation, The: *See—*
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Peterson, Frederick L.; and Paclik, George F., 3,757,808.
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Gartner, Klaus W. Sequential switch means with a linearly movable and rotatable actuator means. 3,758,734, Cl. 200-5.00r.
Gash, Virgil W.: *See—*
Bissing, Donald E.; and Gash, Virgil W., 3,758,569.
Gash, Wirgil W.: *See—*
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Chae, Hi Chul; Gelinas, Richard; Trusty, Jon Caton; and Berntsen, Walter H., 3,757,943.
Geller, Myer; Altman, Daniel E.; and Barstow, Glidden J., to United States of America, Navy. High intensity light source. 3,758,805, Cl. 313-225.000.
Gement, Paul M., Jr. Refrigeration apparatus employing liquified gas. 3,757,531, Cl. 62-156.000.
Gendron, Roger J.; and Skarin, Carl Richard, to Baker Perkins Inc. Transfer apparatus. 3,757,926, Cl. 198-38.000.
General Electric Company: *See—*
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Borom, Marcus P., 3,757,586.
Chiabrandy, Robert E., 3,757,636.
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Bailey, Keith A.; and Marlow, Jerry R., 3,757,644.
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Georgia-Pacific Corporation: *See*—
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Gerber, Karol, to Koerper Engineering Associates, Inc. Rotary piston engine. 3,758,244, Cl. 418-107.000.

German, Dale F.: *See*—
Kautz, Wilbert G.; and German, Dale F., 3,758,003.

Gerrald, Lonnie D., to Westinghouse Electric Corporation. Process for producing ammonium diuranate. 3,758,664, Cl. 423-15.000.

Gerson, Herman: *See*—
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Ghilardi, Guiliana: *See*—
Kalopissis, Gregoire; Abegg, Jean-Louis; Ghilardi, Guiliana; and De Beaulieu, Henri Philippe, 3,757,804.

Gianese, Goffredo, to AMF Incorporated. Apparatus for feeding and cutting web material. 3,757,619, Cl. 83-65.000.

Gianese, Goffredo, to AMF Incorporated. Labelling device. 3,758,103, Cl. 271-4.000.

Gibble, Walter P., to Hunt-Wesson Foods, Inc. Process for improving the cooking stability of soybean oil. 3,758,532, Cl. 260-420.000.

Gibs, Gabriel Joseph: *See*—
Weiss, Martin Joseph; Gibs, Gabriel Joseph; Poletto, John Frank; and Remers, William Alan, 3,758,501.

Gilbert & Barker Manufacturing Company: *See*—
Mitchell, Sidney C.; and Crandall, Stanley C., 3,757,898.

Gilbert, Dixie E., to Phillips Petroleum Company. Biaxially oriented blow molded article with ribs parallel to seam. 3,757,978, Cl. 215-1.00c.

Gilbert, Seymour G.: *See*—
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Saini, Rakesh, 3,758,396.

Gill, Raymond L., to Westinghouse Air Brake Company. Blade position control apparatus. 3,757,870, Cl. 172-4.500.

Gillette Company, The: *See*—
Fischbein, Irwin W., 3,757,734.
Johnston, Richard; and Clarke, Raymond, 3,758,273.

Gillyns, Emile; and Thill, Norbert, to Du Pont de Nemours, E. I., and Company. Electrostatic pinning of polymeric film. 3,758,251, Cl. 425-174.80e.

Giovanetti, Albert: *See*—
Parish, William R.; Kelley, James C.; Giovanetti, Albert; and Lutz, William A., 3,758,674.

Girling Limited: *See*—
Fowler, Richard Thomas, 3,758,164.

Girotra, Narindar Nath: *See*—
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Gischlar, George M., to Isotopes, Inc. Shock limiting and energy absorbing device. 3,757,900, Cl. 188-1.00c.

Gittos, Maurice Ward; James, John William; and Wiggins, Leslie Frederick, to Aspro-Nicholas Limited. Pharmaceutical compositions containing N-cyclopropyl-1-amino indanes and use of such N-cyclopropyl compounds as hypotensives. 3,758,690, Cl. 424-330.000.

Givens, Reuben H.; and Spero, Theodore P. Pressure equalizing device for fluid pressure systems. 3,757,825, Cl. 138-26.000.

Glaser, Josef: *See*—
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Glass, Marvin & Associates: *See*—
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Breslow, Jeffrey D.; and Glass, Marvin I., 3,757,463.
Breslow, Jeffrey D.; and Jaworski, Eugene, 3,757,801.
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Gleason, Clarence Henry: *See*—
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Goatly, Philip H.: *See*—
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Goddin, Clifton S., Jr.; and Montgomery, Neal R., to Amoco Production Company. Method for recovery of elemental sulfur from sour gas. 3,758,676, Cl. 423-573.000.

Godfroid, Jean Jacques; and Thuillier, Jean Eugene, to C.E.R.P.H.A. (Centre Europeen de Recherches Pharmacologiques). Phenoxyacetic acid derivatives. 3,758,506, Cl. 260-332.20a.

Godlewski, Joseph F., 50% to McMahon, Vincent K. Spatula. 3,758,143, Cl. 294-8.000.

Godwin, James B., III: *See*—
Bolick, Fred C., Jr.; and Godwin, James B., III, 3,758,726.

Goff, John R., to Dreis & Krump Manufacturing Company. Control system for synchronizing movement of driven machine members. 3,757,641, Cl. 91-171.000.

Goldberg, Gerald L.; and Wasselle, Henry W., III, to Budd Company, The. Method of impact testing a metallic structure. 3,757,562, Cl. 73-12.000.

Goldberg, Herbert E.: *See*—
Cannon, Robert L.; Goldberg, Herbert E.; Thaler, Sherwood S.; and Daynard, Richard F., 3,757,794.

Goldberg, Jacob, to United States Scientific Instruments, Inc. Flash discharge apparatus and method. 3,758,819, Cl. 315-204.000.

Goldblat, Alexander; and Miller, Raymond. Disposable combined sphygmomanometer cuff and sound chamber. 3,757,772, Cl. 128-2.05g.

Golden, James E.; and Taylor, James F., to Reliable Electric Company. Wire connector. 3,758,703, Cl. 174-84.00c.

Golden, William Donald. Sculling mechanism. 3,757,729, Cl. 115-28.000.

Goldsmith, David S. Keyboard reach extenders. 3,758,697, Cl. 84-425.000.

Golovoy, Amos: *See*—
Labana, Santokh S.; Golovoy, Amos; and Newman, Seymour, 3,758,633.

Goodman, Allan C. Optical verification device. 3,757,944, Cl. 209-111-700.

Goodman, Carol C.; and Feibel, William, said Goodman assor. to Chicago Display Company. Novelty and eductional image transfer unit. 3,758,695, Cl. 35-26.000.

Goodman Equipment Corporation: *See*—
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Goodrich, B. F., Company, The: *See*—
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Goodwin, John R., to State of Defence, Secretary of. Fiber blade with leading edge reinforcement. 3,758,234, Cl. 416-230.000.

Goodwine, Paul C.: *See*—
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Goodyear Tire & Rubber Company, The: *See*—
Crossman, Richard L.; Cook, Albert W.; and Hawley, Jesse G., 3,757,907.

Gordon-Ross, Ronald H., to Stone Container Corporation. Divisible carton. 3,758,021, Cl. 229-51.0db.

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Gott, Hans: *See*—
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Gottlieb, Nathan. Surgical clamp for circumcision. 3,757,787, Cl. 128-34.600.

Gould, Barbara E.: *See*—
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Gould, William A.: *See*—
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Gourdine, Meredith C., to Gourdine Systems, Inc. Apparatus for suppressing airborne particles. 3,757,491, Cl. 55-107.000.

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Gower, Bob G.; and Voelz, Frederick L., to Atlantic Richfield Company. Compression testing method. 3,757,572, Cl. 73-116.000.

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Grace, Fred L.: *See—*
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Grace, W. R., & Co.: *See—*
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Graewert, Wolfgang Kave, to Texas Instruments, Incorporated. Electronic circuit arrangement for controlling an exhaust gas decontaminator. 3,757,519, Cl. 60-286.000.

Graff, Roderich W. Adsorber method and apparatus. 3,757,492, Cl. 55-181.000.

Graham, Martin H., to Comprehensive Health Testing Laboratories, Inc. Electrocardiograph apparatus. 3,757,778, Cl. 128-2.06r.

Grahn, Robert Donald: *See—*
Laama, Vello; and Grahn, Robert Donald, 3,757,670.

Granger, Edward H., Jr., to Phillips, F. C., Inc. Golf shoe cleat and support therefor. 3,757,434, Cl. 36-2.0ah.

Granges-Essem, AB: *See—*
Nilsson, Karl-Ivar Sigurd, 3,758,044.

Grant Oil Tool Company: *See—*
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Granted to the United States National Aeronautics and Space Administration under the Provision of 42 USC. 2457: *See—*
Schmidt, Kenneth C., 3,758,781.

Granzotti, Angelo N., to International Business Machines Corporation. Free hand drawing display system utilizing light pen to write and erase information. 3,758,717, Cl. 178-.800.

Grason, Rufus L.: *See—*
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Grason-Stadter Company: *See—*
Arguimbau, Lawrence B.; and Grason, Rufus L., 3,757,769.

Graves Corporation: *See—*
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Gravlee, Leland C., to Becton, Dickinson and Company. Aspirating syringe with grasping rings. 3,758,006, Cl. 222-323.000.

Green, Donald T.; and Snarr, James L., to Imagex, Inc. X-ray inspection system. 3,758,723, Cl. 178-6.800.

Greenberger, Joseph Irwin, to Wean United, Inc. Hydraulic mills. 3,757,553, Cl. 72-21.000.

Greenlay, Charles A.: *See—*
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Gregory, Milton Wesley: *See—*
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Grenn, James F. Water pump hoist. 3,758,078, Cl. 254-166.000.

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Gross, Arthur: *See—*
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Grothe, Horst: *See—*
Scholz, Heinrich; Bollig, Georg; Grothe, Horst; and Otto, Gerhard, 3,757,848.

Grum, Frank; Przybylowicz, Edwin Paul; Costa, Lorenzo Federico; and Miller, Raymond Sumner, to Eastman Kodak Company. Method of scintillation counties using triarylboranes as scintillators. 3,758,412, Cl. 252-301.20r.

Grunewald, Ernst: *See—*
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GTE Laboratories, Incorporation: *See—*
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Guglielmetti, Leonardo: *See—*
Siegrist, Adolf Emil; Liechti, Peter; Maeder, Erwin; Guglielmetti, Leonardo; Meyer, Hans Rudolf; and Weber, Kurt, 3,758,462.

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Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, 3,757,522.

Gulf & Western Industrial Products Company: *See—*
Eichinger, John W., 3,757,986.

Gum, Wilson F.; and Nelson, David A., to Dow Chemical Company, The. 1-Bromo-1-(2,2-dichloro or (2-bromo-2-chloro)-2-nitroethyl)-cyclopentane. 3,758,616, Cl. 260-644.000.

Gunn, Damon M. Article sorting apparatus and method. 3,757,942, Cl. 209-111.500.

Gunning, Samuel D., to Kent Air Tool Co. Air hammer and combined support and muffler therefor. 3,757,875, Cl. 173-44.000.

Gunther, Wolfgan H. H., to Xerox Corporation. Electrophotographic used of selenium containing polymers. 3,758,301, Cl. 96-1.500.

Gunze Kobunshi Kogyo Kabushiki Kaisha: *See—*
Sakurai, Masao; Muto, Kikuo; and Sugimoto, Noritsugu, 3,758,370.

Gunze Kobunski Kogyo Kabushiki Kaisha: *See—*
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Gustmann, Kurt; and Wenz, Herbert, to Pfaff Industriemaschinen GmbH. Upper transport device for sewing machines. 3,757,714, Cl. 112-212.000.

Gutterman, Kirill Davidovich: *See—*
Brukovsky, Igor Pavlovich; Yakovlev, Pavel Borisovich; Gutterman, Kirill Davidovich; Perov, Alexandr Vasilievich; Hukov, Vladimir Fedorovich; Nekrasova, Larisa Petrovna; and Ivanovsky, Jury Dmitrievich, 3,758,816.

Guyer, Reynolds. Duplex book. 3,758,136, Cl. 281-16.000.

Gyogyszerkutato Intezet: *See—*
Kasztreiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, 3,758,546.

Gyurech, Gabor, to Sulzer Brothers Ltd. Turbo-compressor having means for drawing in working medium at low temperature. 3,758,226, Cl. 415-104.000.

Haack, Wolf-Dieter, to Schering A.G. Aqueous bath for chemical deposition of ductile copper coatings. 3,758,314, Cl. 106-1.000.

Habermann, Clarence E.; and Tefertiller, Ben A., to Dow Chemical Company, The. Hydration of nitriles to amides using cupreous catalysts. 3,758,578, Cl. 260-561.00n.

Hackstein, Karl: *See—*
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Hackworth, Lloyd G. Safety anchor system for mobile homes. 3,757,475, Cl. 52-23.000.

Haefely, Emil, & Cie AG: *See—*
Bill, Jacky, 3,757,404.

Haeussler, Ernst. Sandwich slab construction and anchor therefor. 3,757,482, Cl. 52-405.000.

Hagedorn-Olsen, Jens, to Danfoss A/S. Fluid pressure activated snap-action switch with differential and range spring adjustment means. 3,758,732, Cl. 200-81.00r.

Hageman, Howard A., to Uniroyal, Inc. Sulfur-containing polyaryl polyphenolic stabilizers for elastomeric polymers. 3,758,440, Cl. 260-45.95c.

Hahnlein, Eberhard: *See—*
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Halco Industries, Inc.: *See—*
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Hale, William T.: *See—*
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Hall, John Oliver. Animal commode. 3,757,738, Cl. 119-1.000.

Hall, Stanley T.: *See—*
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Haller, Wolfgang. Porous material and method of making the same. 3,758,284, Cl. 65-31.000.

Halliburton Company: *See—*
Malone, William T.; Holtmyer, Marlin D.; Tinsley, John M.; and Chatterji, Jiten, 3,758,406.

Hallihagen, Sven Goran: *See—*
Carlsson, Per Arvid Emil; Corrodi, Hans Rudolf; Hallihagen, Sven Goran; and Junggren, Ulf Krister, 3,758,691.

Halvorsen, Elmer F.; and Byrd, Harold R., to Carborundum Company, The. Liquid filter device. 3,757,949, Cl. 210-122.000.

Hamill, Robert L.; and Hoehn, Marvin M., to Lilly, Eli, and Company. Antifungal antibiotic A-9145 and process for production thereof. 3,758,681, Cl. 424-118.000.

Hamisch, Paul H., Jr.; and Pabodie, Robert M., to Monarch Marking Systems, Inc. Printing apparatus. 3,758,010, Cl. 226-33.000.

Hamlik, Jerry P.: *See—*
Brudi, Ronald A.; and Hamlik, Jerry P., 3,757,977.

Hammann, Ingeborg: *See—*
Stolzer, Claus; Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, 3,758,644.

Hammann, Ingelborg: *See—*
Hoffman, Hellmut; Hammann, Ingelborg; and Stendel, Koeln Wilhelm, 3,758,487.

Hammelmann, Paul, Maschinenfabrik: *See—*
Broker, Erich, 3,757,811.

Hammon, Donald P.; and Hammon, Edwin J., to Industrial Concepts Corporation. Oil well scraping device. 3,757,859, Cl. 166-173.000.

Hammon, Edwin J.: *See—*
Hammon, Donald P.; and Hammon, Edwin J., 3,757,859.

Hampton, Joe B., to Phillips Petroleum Company. Catalytic cracking process. 3,758,400, Cl. 208-72.000.

Hampton, Thomas L.: *See—*
Seiwert, David L.; and Hampton, Thomas L., 3,757,827.

Hania, John D. H.: *See—*
Baljet, Daniel J.; Sodderland, George A.; and Hania, John D. H., 3,757,932.

Hanotier, Jacques D. V.: *See—*
De Radzitzky D'Ostrowick; Hanotier, Jacques D. V.; and Vaerman, Joseph M. E., 3,758,557.

Hansen, Neil W.; and Orenstein, Nathan, to United States of America, Navy. Search-lock system. 3,758,866, Cl. 328-127.000.

Hanson, Larry: *See—*
Miller, Harmon B., III; Fernander, Bill; and Hanson, Larry, 3,757,443.

Hanssen, Pierre J., to Hassen, P., & Cie S.A. Roller for removing folds from material in film or web form. 3,757,399, Cl. 29-116.00r.

Hantscho, George, Company Inc.: *See—*
Munn, Robert; and Tiso, Albert, 3,758,102.

Harbor, Lloyd: *See—*
Taylor, Stanford E.; and Harbor, Lloyd, 3,757,432.

Hardtmann, Goetz E.; and Ott, Hans, to Sandoz-Wander, Inc. Pyrido (2,3-D) pyrimidin-2-ones. 3,758,475, Cl. 260-256.40f.

Hardy, John C., to Angelica Corporation. Method of bonding flexible plastic tubes to fabrics. 3,758,356, Cl. 156-160.000.

Hargash, Paul, to Dow Chemical Company. Bending device. 3,757,560, Cl. 72-458.000.

Harkenrider, Robert J.; and Moe, John L., to Waynco, Inc. Control circuit for load having measureable coefficient of resistance. 3,758,844, Cl. 323-22.00t.

Harlan, Alfred R., to Motorola, Inc. Automatic eject mechanism for cassette tape player. 3,758,119, Cl. 274-4.00e.

Harms, Wolf-Henning, to Krone GmbH. Switching signal converter for a time multiplex PCM transmission system. 3,758,725, Cl. 179-15.0by.

Harner, Kermit I., to United Aircraft Corporation. Turbine power plant control with an on-line optimization control. 3,758,764, Cl. 235-150.200.

Harper-Wyman Company: *See—*
Fijalkowski, Joseph J., 3,758,264.

Harrington, Joseph K.: *See—*
Robertson, Jerry E.; Harrington, Joseph K.; and Kvam, Donald C., 3,758,688.

Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., to Minnesota Mining and Manufacturing Company. Perfluoroalkylsulfonamidobenzothiazoles. 3,758,490, Cl. 260-305.000.

Harris, Anthony Roberts, to Dunhill Lighters Limited. Portable gas lighter with magnetically operated lid. 3,758,262, Cl. 431-130.000.

Harris, George M.; and Behnke, Wilbert B., to Harris-Hub Company, Inc. Adjustable bed frame member. 3,757,361, Cl. 5-184.000.

Harris, Jack R.: *See—*
Fenner, Robert M.; and Harris, Jack R., 3,758,110.

Harris, Rano J., Jr.: *See—*
Harris, Rano J., Sr.; and Harris, Rano J., Jr., 3,757,981.

Harris, Rano J., Sr.; and Harris, Rano J., Jr. Valves and valve needle syringes. 3,757,981, Cl. 215-37.00r.

Harris-Hub Company, Inc.: *See—*
Harris, George M.; and Behnke, Wilbert B., 3,757,361.

Harrison, John G. Self swing training device. 3,758,117, Cl. 273-194.00b.

Hartel, Hagen: *See—*
Kind, Dieter; and Hartel, Hagen, 3,758,790.

Harting, Cary L., to Esso Research and Engineering Company. Lithium soap grease containing monolithium borate. 3,758,407, Cl. 252-18.000.

Hartling, Wolfgang: *See—*
Sellmaier, Englebert; Hartling, Wolfgang; and Waltraud, Haus, 3,757,582.

Hartmann, Otto, to Daimler-Benz Aktiengesellschaft. Cooling water circulation for multi-cylinder internal combustion engines. 3,757,747, Cl. 123-41.740.

Hartzler, Harris Dale, to Du Pont de Nemours, E. I., and Company. 1,3-Dithiole derivatives from acetylenic compounds substituted with at least one electron-withdrawing group and carbon disulfide. 3,758,503, Cl. 260-327.00m.

Harvey, Andrew C.: *See—*
Menzin, Marvin; Blanz, John H.; Harvey, Andrew C.; and Rhee, Sang Soon, 3,758,657.

Harvey, Andrew Cecil: *See—*
Blutt, John Robert; and Harvey, Andrew Cecil, 3,757,555.

Harvey, Donald M., to Eastman Kodak Company. Automatic focusing device. 3,758,209, Cl. 356-4.000.

Hassen, P., & Cie S.A.: *See—*
Hanssen, Pierre J., 3,757,399.

Hatuno, Kimio. Massage sandal. 3,757,774, Cl. 128-25.00b.

Hatz, Ernst, to Motorenfabrik Hatz KG. Valve operating gear in internal combustion engines. 3,757,749, Cl. 123-90.220.

Haug, J. Edward: *See—*
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Hauni-Werke Korber & Co. KG: *See—*
David, Harry; and Rudszinat, Willy, 3,757,800.
Kruse, Friedel; Wahle, Gunter; Rudszinat, Willy; and Erdmann, Otto, 3,757,624.

Haveg Industries, Inc.: *See—*
Northway, Clarence E.; and Pegg, Ronald L., 3,758,352.

Hawkings, William E., to Price Company, Limited, The. Paper machine couching box with a multiperforated surface. 3,758,380, Cl. 162-306.000.

Hawley, Jesse G.: *See—*
Crossman, Richard L.; Cook, Albert W.; and Hawley, Jesse G., 3,757,907.

Haworth, James G. Automatically varied oscillation type ball projecting device. 3,757,759, Cl. 124-7.000.

Hayden, James W.; Holm, Roy T.; and Morris, Rupert C., to Shell Oil Company. Cleansing and laundering compositions. 3,758,419, Cl. 252-551.000.

Hayes, Robert A.: *See—*
Werner, Byron H.; and Hayes, Robert A., 3,758,631.

Hayhurst, George, to Tridon Limited. Windshield wiper clip assemblies. 3,757,377, Cl. 15-250.320.

Haythornthwaite, James; and Fardeau, Joseph A., to Scapa Dryers (Canada) Ltd. Means for linking separable fasteners. 3,757,402, Cl. 29-235.000.

Healy, Denis John. Aerosol composition compatible with excess propellant. 3,758,411, Cl. 252-90.000.

Heath, Bushey: *See—*
Bailey, Joseph; Heath, Bushey; Knott, Edward B.; and Marr, Peter A., 3,758,309.

Heath Company: *See—*
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Heberlein & Co.: *See—*
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Heckmaier, Josef: *See—*
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Hedgewick, Peter, to Reflex Corporation of Canada Limited. Roadway marker. 3,758,191, Cl. 350-103.000.

Hedman, Clarence L., Jr.; Myrenne, Karl-Dieter S.; and Vartanian, Perry H., Jr., to SCM Corporation. Voltage-controlled spectrae separation of light with liquid crystals. 3,758,195, Cl. 350-150.01c.

Heffron, Allen J.: *See—*
Deming, Joseph A.; Heffron, Allen J.; and Estry, Arthur L., 3,757,615.

Heiba, El Ahmadi I.; and Dessau, Ralph M., to Mobil Oil Corporation. Substituted butyrolactones derived from non-conjugated polyolefins. 3,758,514, Cl. 260-343.600.

Heiba, El Armadi I.; and Dessau, Ralph M., to Mobil Oil Corporation. Cyclo-substituted gamma-butyrolactones. 3,758,513, Cl. 260-343.300.

Heim, Josef: *See—*
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Heimo Geratabau-Gesellschaft mit-beschrankter: *See—*
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Heimstetter, Gerald J.: *See—*
Szymanski, Chester D.; and Heimstetter, Gerald J., 3,758,323.

Hein, Georg, to Vaillant, Joh., KG. Gas burner of sheet metal. 3,758,265, Cl. 431-349.000.

Hein, Richard D., to General Tire & Rubber Company, The. Elastomeric expansion joint. 3,758,220, Cl. 404-67.000.

Heinle, Carl William, to American Can Company. Apparatus for necking-in tubular members. 3,757,558, Cl. 72-354.000.

Heinz, Winfried; Schwarz, Wilhelm; and Tromp, Henricus, to Fried. Krupp Gesellschaft mit beschrankter Haftung. Resilient end abutment. 3,758,091, Cl. 267-65.00r.

Heiskel, Elmar: *See—*
Jastrow, Horst; Lederer, Michael; and Heiskel, Elmar, 3,758,425.

Held, Walter; and Lerch, Rolf, to Licentia Patent-Verwaltungs-G.m.b.H. Dispenser cathode and method for making same. 3,758,808, Cl. 313-346.000.

Helland, John R.: *See—*
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Heller Laboratories: *See—*
Heller, Robert E.; and Hall, Stanley T., 3,757,585.

Heller, Robert E.; and Hall, Stanley T., to Heller Laboratories. Pipette apparatus. 3,757,585, Cl. 73-425.600.

Hemmingsen, John O.; Rogers, Glyn D.; and Mullen, Albert C., to MacMillan Bloedel Limited. Log bundling method and apparatus. 3,757,678, Cl. 100-2.000.

Henderson, Larry D.: *See—*
Johnson, Craig E.; and Henderson, Larry D., 3,758,325.

Henderson, Margaret S.: *See—*
Bax, Pieter C.; Henderson, Margaret S.; and Rammler, David H., 3,758,456.

Henderson, Norman Leo; Bruno, August Joseph; and Drain, James Joseph, to American Cyanamid Comapny. Composition of matter and method of use. 3,758,680, Cl. 424-22.000.

Henderson, Stephen H. Coin collection box. 3,758,026, Cl. 232-1.00r.

Henig, Seymour, to Thompson, John I., & Company. Method and apparatus for sorting articles such as letters. 3,757,939, Cl. 209-72.000.

Henkel, Robert W.: *See—*
Anstin, Wayne D.; Byrne, Joseph E.; Clifford, Gilbert F.; Henkel, Robert W.; Odell, Arthur W.; Quaglia, Lawrence T.; and Smith, Donald F., 3,757,941.

Henning, Klaus: *See—*
Kandler, Joachim; Merkenich, Karl; Henning, Klaus; and Pirig, Wolf-Dieter, 3,758,671.

Hennings, Klaus, to Licentia Patent-Verwaltungs-G.m.b.H. Mask or original for reproducing patterns on light sensitive layers. 3,758,326, Cl. 117-37.00r.

Henrion, W. S., to Texas Instruments, Incorporated. Self-interconnecting/self-repairable electronic systems on a slice. 3,758,761, Cl. 235-153.0ak.

Hepa Corporation: *See—*
Scott, Robert D., 3,757,499.

Herbener, Henry M. Billfolder and method of making. 3,757,840, Cl. 150-35.000.

Herbst, Thomas: *See—*
Finsterwalder, Ulrich; Finsterwalder, Klemens; and Herbst, Thomas, 3,757,528.

Hercules Incorporated: *See—*
Dehm, Henry C., 3,758,334.

Herd, David P., to Rockwell Manufacturing Company. Sealing arrangement. 3,758,072, Cl. 251-332.000.

Herkenrath, Erik, to Lonza Ltd. Process for the production of 2-aryl-3-imino-s-triazolo-(4,3-alpha)-5-methyl-7-hydroxy-pyrimidines. 3,758,474, Cl. 260-256.40f.

Herman, Harry H., Jr. Method and apparatus for effecting electromagnetic displacement of fluids. 3,757,846, Cl. 164-51.000.

Herman, Joseph L., to Thompson, Emily Herman. Method for galvenizing. 3,758,333, Cl. 117-62.000.

Hermes, Rolf, to Mannesmann-Meer Aktiengesellschaft. Hydraulic press for compression of powder. 3,758,245, Cl. 425-78.000.

Herndon, John W., to United States of America, Navy. Multiple gun rotatable television projector head for 360 degree display. 3,758,714, Cl. 178-7.50d.

Herr, Robert L., to Rimar Manufacturing, Inc. Automatic pin injector. 3,758,014, Cl. 227-7.000.

Herrmann, Cal C. Threshold analyzer and stimulator testing device with integral generator. 3,757,790, Cl. 128-419.00p.

Hervert, George L.: *See—*
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Hesston Corporation: *See—*
Brooks, Dean P.; and McDaniel, Gordon M., 3,757,687.
McCanse, James E., 3,757,596.

Heuner, Robert Charles; and Steudal, Goetz Wolfgang, to RCA Corporation. Peak detector circuit. 3,758,792, Cl. 307-235.00a.

Hewlett-Packard Company: *See—*
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Oliver, Bernard M., 3,758,840.

Heyne, Clarence A., to Owens-Illinois, Inc. Glass feeder shear mechanism. 3,758,286, Cl. 65-334.000.

Hibbert, Frederick: *See—*
Robinson, John Joseph; and Hibbert, Frederick, 3,757,433.

Hickerson, Frederick R.; and Marhefka, Andrew J. Multi-purpose munitions carrier. 3,757,635, Cl. 89-36.00h.

Hicks, Clark Thomas: *See—*
Chisholm, James Edwards; Hicks, Clark Thomas; and Buonaura, Anthony, 3,757,358.

Hicks, James C.: *See—*
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Higo, Kyomehi: *See—*
Irikura, Tsutomu; Abe, Yasuo; Okamura, Kyuya; Higo, Kyomehi; Maeda, Akitoshi; and Morinaga, Fumihiko, 3,758,471.

Hilbenbrandt, Leon H., to International Business Machines Corporation. Illumination system for copier machines arranged to minimize glare with respect to an operator. 3,758,774, Cl. 240-103.00r.

Hill, Hayden C. Liquid control and dispensing. 3,757,814, Cl. 137-268.000.

Hill, Jeffrey S.: *See—*
Campen, Jan P.; Spitzer, Ernst L.T.M.; Senden, Wilhelmus A. A.; and Hill, Jeffrey S., 3,758,594.

Hill, William J.; and Wynn, William R., to Morgan Construction Company. Material handling apparatus. 3,757,960, Cl. 214-1.0pb.

Hillberg, Ernest T.: *See—*
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Hilton, Allan Richard, to Mining Developments A.G. Mining. 3,758,160, Cl. 299-15.000.

Hindersinn, Raymond R.: *See—*
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Hindley, David: *See—*
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Hirao, Osamu; and Kimoto, Youichi, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Power steering mechanism for vehicles. 3,757,886, Cl. 180-79.20r.

Hirasawa, Takeshi: *See—*
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Hirawawa, Tatoya: *See—*
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Hiseler, Stanley Robert: *See—*
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Hitachi, Ltd.: *See—*
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Hitachi Metals, Ltd.: *See—*
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Hittmair, Paul: *See—*
Nitzsche, Siegfried; Kaiser, Wolfgang; Wohlfarth, Ernst; and Hittmair, Paul, 3,758,441.

Hoag, Ethan D., to Avco Corporation. Corona discharge laser. 3,758,874, Cl. 331-94.500.

Hobart Manufacturing Company, The: *See—*
Engebretsen, Einar; and Grunewald, Ernst, 3,757,683.

Hobbs, Edwin D. Double gate tortuous grip rope brake. 3,757,901, Cl. 188-65.400.

Hobbs, Edwin L. Articulating leg slings and belt. 3,757,893, Cl. 182-6.000.

Hoehn, Marvin M.: *See—*
Hamill, Robert L.; and Hoehn, Marvin M., 3,758,681.

Hoffman, Hellmut; Hammann, Ingelborg; and Stendel, Koeln Wilhelm, to Bayer Aktiengesellschaft. Thizolo(thiono)phosphoric(phosphonic)acid esters. 3,758,487, Cl. 260-302.00e.

Hoffman, Herbert N.: *See—*
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Hoffman-La Roche Inc.: *See—*
Edenhofer, Albrecht, 3,758,483.

Hoffmann, Hans-Dieter: *See—*
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Hoffmann-La Roche Inc.: *See—*
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Hofmann, Hans-Peter: *See—*
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Hoglund, Edward. Putter. 3,758,115, Cl. 273-164.000.

Hohmann, Ernst: *See—*
Frohne, Johann-Christian; Hohmann, Ernst; and Schneider, Werner, 3,758,776.

Holker, Richard John, to Fram Filters Ltd. Air filtration and or regulation of carburetor air intake temperature. 3,757,752, Cl. 123-122.00d.

Holko, Kenneth H.; and Moore, Thomas J., to United States of America, National Aeronautics and Space Administration. Enhanced diffusion welding. 3,758,741, Cl. 219-91.000.

Holland, Thomas E.: *See—*
Buck, Willard E.; and Holland, Thomas E., 3,758,715.

Holler, Howard V.: *See—*
Leonard, William J., Jr.; and Holler, Howard V., 3,758,418.

Holly, James A., to Hollymatic Corporation. Motor drive for an implement. 3,758,798, Cl. 310-50.000.

Hollymatic Corporation: *See—*
Holly, James A., 3,758,798.

Holm, Bengt Lennard; and Tornmarck, Sven Ivan Arvid. Method and apparatus for fluidizing activation of particulate, granular, viscous and similar materials. 3,758,162, Cl. 302-53.000.

Holm, Roy T.: *See—*
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Holstein, Alvin W.; Short, William H.; and Kueneker, William, to UMC Industries, Inc. Fresh-brew coffee vendor. 3,757,669, Cl. 99-280.000.

Holtmyer, Marlin D.: *See—*
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Homeyer, Bernhard: *See—*
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Honda Giken Kogyo Kabushiki Kaisha: *See—*
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Honds, Soichiro, to Honda Giken Kogyo Kabushiki Kaisha. Motorcycle which can be disassembled into front and rear subassemblies. 3,757,882, Cl. 180-33.00r.

Honeywell Inc.: *See—*
Diddens, Paul A., 3,758,872.
Elliott, Franklin P., 3,758,817.
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Weagant, Robert A., 3,758,210.
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Honeywell Information Systems Inc.: *See—*
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Nowell, John R.; and Genuit, Luther L., 3,758,852.

Honnold, Darrel Lee: *See—*
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Hook, Richard Wayne; and Zaun, Richard David, to Deere & Company. Root crop harvester. 3,757,867, Cl. 171-58.000.

Hook, Richard Wayne; and Zaun, Richard David, to Deere & Company. Auger conveyor. 3,757,928, Cl. 198-160.000.

Hooker Chemical Corporation: *See—*
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Wilson, Bruce N.; and Hindersinn, Raymond R., 3,758,422.

Hoon, Harry E., Jr., to Envirotech Corporation, mesne. Contact device. 3,758,087, Cl. 261-94.000.

Hopkins, Billy C. Portable tooth cleaner. 3,757,419, Cl. 32-59.000.

Hopkins, John B., to United States of America, Transportation. Railroad crossing signalling system. 3,758,775, Cl. 246-125.000.

Hoppe, Lutz; and Dobbertin, Dieter, to Wolff Walsrode Aktiengesellschaft. Drilling fluid stabilizer. 3,758,449, Cl. 260-85.50r.

Hopper, Theodore R., to FMC Corporation. Method of producing latex paint. 3,758,432, Cl. 260-29.6mn.

Horikawa, Hideichi; Katayama, Shitomi; and Masuda, Noboru, to Denki Onkyo Co., Ltd. Block copolymers of polyamides and amino terminated polymerized ethylenically unsaturated compounds. 3,758,636, Cl. 260-857.00g.

Horix Manufacturing Company: *See—*

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Hormel, Herbert L.: *See—*
Bradel, Norman F.; and Hormel, Herbert L., 3,757,956.
Horn, George M., to United States of America, Navy. Right spherical segment-glass shell-to metal-joint. 3,757,725, Cl. 114-173.000.
Horn, Ronald C.: *See—*
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Horowitz, Hugh H.; and Jahnig, Charles E., to Esso Research and Engineering Company. Corrosion inhibitors for cuprous tetrachloroaluminate complexes. 3,758,606, Cl. 260-677.00a.
Horowitz, Hugh H.; and Ruhle, Helmut W., to Esso Research and Engineering Company. Inhibitors for olefin complexing process. 3,758,607, Cl. 260-677.00a.
Hosono, Hiroo: *See—*
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Howard Harvestore Limited: *See—*
Cheale, Daniel, 3,757,595.
Hozeski, Kenneth W.: *See—*
Barecki, Chester J.; Van Ryn, Arthur L.; and Hozeski, Kenneth W., 3,758,182.
Hrdina, Jiri, to Ceskoslovenska Akademie ved. Controlled peristaltic pump. 3,758,239, Cl. 417-477.000.
Hubbard, Arthur Lowell, to Deere & Company. Cotton harvester. 3,757,502, Cl. 56-28.000.
Huber, Wolfgang; and Schulte, Thomas L., to Diagnostics Data, Inc. Pharmaceutical compositions comprising orgotein and their use. 3,758,682, Cl. 424-177.000.
Hudson, John P., to Sarkes Targian, Inc. Digital special effects generator. 3,758,712, Cl. 178-6.800.
Hughes Aircraft Company: *See—*
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Dill, Hans G., 3,757,510.
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Millies, Clarence Fredrick; and Hughes, Loren V., 3,757,998.
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Hughes, Robert D.; and Steigelmann, Edward F., to Standard Oil Company. Process. 3,758,605, Cl. 260-677.00a.
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Hulls, Leonard Robin: *See—*
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Hunbiker, Fritz: *See—*
Schmutz, Jean; and Hunbiker, Fritz, 3,758,479.
Hungerford, Daniel Comstock, to Brunswick Corporation. Variable angle twin fluke anchor. 3,757,727, Cl. 114-208.000.
Hunt, Allan Frederick, to Chrysler United Kingdom Limited. Fuel tanks. 3,757,753, Cl. 123-136.000.
Hunt, Rodney, Company: *See—*
Orlick, John, 3,757,547.
Hunt-Wesson Foods, Inc.: *See—*
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Hunter, John J. Process for lining pipe joints. 3,758,361, Cl. 156-287.000.
Hurco Manufacturing Company, Inc.: *See—*
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Huriez, Claude, to Cables de Lyon Alsacienne. Method of welding an electric cable sheathing employing a heat-shrinkable thermal screen. 3,758,353, Cl. 156-52.000.
Hurkmans, Antoon M.: *See—*
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Hurlbut, William B., Sr.; Liebig, Preston D.; and Maurin, Peter G., to Combustion Engineering, Inc. Demister vane assembly. 3,757,498, Cl. 55-440.000.
Hurst, John. Method of sealing shuttering against a deformable section of an external waterstop for use in forming joints in concrete. 3,758,650, Cl. 264-34.000.
Husted, Donald R.: *See—*
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Ideal Toy Corporation: *See—*
Thorn, Herbert, 3,757,458.
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Ikeya, Fumihiro, to Nippon Gakki Seizo Kabushiki Kaisha. Device for adjusting the position of an archery bow arrow rest. 3,757,764, Cl. 124-41.000.
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Imaizumi, Ichiro: *See—*
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I.M.I., division of Becton, Dickinson and Company: *See—*
Doniguian, Thaddeus M., 3,758,398.
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Hammon, Donald P.; and Hammon, Edwin J., 3,757,859.
Ingels, Francis. Apparatus for thermic development of heat-sensitive paper. 3,757,662, Cl. 95-89.00r.
Ingersoll Milling Machine Company, The: *See—*
Van Roojen, Jan, 3,758,175.
Inoue, Hideo, to Teac Corporation. Magnetic tape motor drive control apparatus for magnetic tape recorders. 3,758,834, Cl. 318-6.000.
Inoue, Yoshio. Device for setting half-tone negative for producing a half-tone plate for use in polychrome printing to a predetermined position on a sheet film. 3,758,206, Cl. 355-75.000.
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Irikura, Tsutomu; Abe, Yasuo; Okamura, Kyuya; Higo, Kyomehi; Maeda, Akitoshi; and Morinaga, Fumihiko, to Kyorin Seiyaku Kabushiki Kaisha. Triazine derivatives. 3,758,471, Cl. 260-249.600.
Ironfield, Richard, to Amana Refrigeration, Inc. Waveguide filter for microwave heating apparatus. 3,758,737, Cl. 219-10.550.
Isenberg, Lionel; and Hillberg, Ernest T., to North American Rockwell Corporation. Thermally insulated container. 3,757,982, Cl. 220-9.00c.
Ishikawa, Masakazu; Shibatani, Jyuichi; and Shiomi, Masanao, to Toyota Jidosha Kabushiki Kaisha. Suspension system for vehicles. 3,758,129, Cl. 280-96.100.
Ishikawa, Soji, to Kabushiki Kaisha Ishikawa Seisakusho. Needle assembly with longitudinally movable filter. 3,757,780, Cl. 128-218.00n.
Ishizaki, Akira; Hirawawa, Tatoya; Nakamura, Michiteru; and Kawaoe, Takeshi, to Kabushiki Kaisha Meidensha of Tokyo. Brushless excitation device. 3,758,843, Cl. 322-25.000.
Islam, Rafiqul; Garnish, Sidney G.; Figov, Murray; and Mustacchi, Henry, to GAF Corporation. Diazotype light-sensitive compositions containing a 4-(N-pyrrolidino)-3-substituted benzene diazonium salt. 3,758,307, Cl. 96-91.00r.
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Ivanovsky, Jury Dmitrievich: *See*—
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Izuta, Tadao, to Nippon Gakki Seizo Kabushiki Kaisha. Archery bow having vibration dampener. 3,757,761, Cl. 124-23.000.
J & J Manufacturing Company: *See*—
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Jacalone, Richard P.: *See*—
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Jackobs, Nancy E.: *See*—
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Jackson, Benjamin L. Paint tray. 3,757,380, Cl. 15-257.050.
Jackson, George E., to Union Carbide Corporation. Double faced warp knit fabric and apparatus and method for making same. 3,757,540, Cl. 66-192.000.
Jackson, Richard L. Insulin product. 3,758,683, Cl. 424-178.000.
Jackson, Weldon H., to Hewlett-Packard Company. Transducer formed in peripherally supported thin semiconductor web. 3,758,830, Cl. 317-234.00r.
Jackson, William Wayne: *See*—
Maust, John Edward, Jr.; Honnold, Darrel Lee; and Jackson, William Wayne, 3,757,871.
Jacobs, Orville W., to East Dayton Tool & Die Company, The. Article transfer apparatus. 3,757,961, Cl. 214-1.0bb.
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Jacobson, Michael D., to United States of America, Navy. Low-interference seeker dome attachment. 3,757,698, Cl. 102-70.20r.
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Jalbert, Domina C. Cloth ventilator. 3,757,664, Cl. 98-37.000.
James, Donald N.; and Nightingale, Peter A., to Ball Brothers Research Corporation. Television receiver mounting apparatus. 3,758,716, Cl. 178-78.000.
James, John William: *See*—
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Janssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendrik; Postma, Cambertus; and Guerts, Angustinus Joseph, to U.S. Philips Corporation. Method of producing electrically conductive metal layers. 3,758,304, Cl. 96-38.400.
Jastrow, Horst; Lederer, Michael; and Heiskel, Elmar, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of formable styrene polymers. 3,758,425, Cl. 260-2.50b.
Jaworski, Eugene: *See*—
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Jebens, Aksel, to Sentralinstitutt for Industriell forskning. Forming cooling channels in hot thermally bloated ceramic block to facilitate cooling. 3,758,652, Cl. 264-43.000.
Jeffries, Edward William; and Jeffries, Raymond Elmer, Jr. Camper lifting system and removable jacks therefor. 3,758,074, Cl. 254-45.000.
Jeffries, Raymond Elmer, Jr.: *See*—
Jeffries, Edward William; and Jeffries, Raymond Elmer, Jr., 3,758,074.
Jeger, Oskar; and Schaffner, Kurt, to Ciba-Geigy Corporation. A-nor-B-homo-steroids. 3,758,588, Cl. 260-586.00h.
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Jensen, Billy M., to Bio-Logics Products, Inc. Reading of manually manipulated encoded devices. 3,758,754, Cl. 235-61.11e.
Jerobee Industries, Inc.: *See*—
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Jett, Preston L.; and Hutchinson, James T., Jr., to Jettson Engineering Company, Inc. Battery powered flourescent light. 3,758,823, Cl. 315-219.000.
Jettson Engineering Company, Inc.: *See*—
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Johns-Manville Corporation: *See*—
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Johnson, Charles William, 3,758,013.
Lambert, Gerard L.; and Greenlay, Charles A., 3,757,973.
Meserole, Robert H., 3,758,139.
Johnson, Charles William, to Johns-Manville Corporation. Skein timer-device. 3,758,013, Cl. 226-199.000.
Johnson, Craig E.; and Henderson, Larry D., to United States of America, Navy. Nitrocellulose containing adhesive compositions. 3,758,325, Cl. 106-180.000.
Johnson, Herbert G., to Shell Oil Company. Method for forming hollow articles of work-strengthenable plastic materials. 3,757,718, Cl. 113-120.00r.
Johnson, Thomas: *See*—
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Johnson, Thomas E., to Lewis, Chas. S., & Co., Inc. Corrosion resistant alloy. 3,758,296, Cl. 75-122.000.
Johnston, Mack S. Tapping assembly for beer kegs and the like. 3,758,008, Cl. 222-400.700.
Johnston, Richard; and Clarke, Raymond, to Gillette Company, The. Processes for sterilizing polypropylene objects. 3,758,273, Cl. 21-54.00r.
Johnston, Robert A.; Docherty, Daniel; and Arrington, Robert L., to Caledon Engineering Inc. De-mister device. 3,757,493, Cl. 55-242.000.
Jones, Arthur Llewelyn: *See*—
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Jones, Claude A. Self-propelled snow sled. 3,757,880, Cl. 180-5.00r.
Jones, Irby C., Jr.; and Rhymes, Aubrey J., Jr., to Dow Chemical Company, The. Process for recovering urea from pyrolysis systems. 3,758,572, Cl. 260-553.00b.
Jones, Michael Edward Beney; and Jennings, Brian Edmund. Cross-linked poly(arylsulphone ethers). 3,758,436, Cl. 260-37.00r.
Jones, R. A., & Co., Inc.: *See*—
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Janssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendrik; Postma, Cambertus; and Guerts, Angustinus Joseph, 3,758,304.
Jordan, Anthony, to WISCO. Device for controlling tension of wire dispensed from a real. 3,758,046, Cl. 242-147.00r.
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Juguin, Bernard; and Le Page, Jean Francois, to Institut Francais du Petrole des Carburants et Lubrifiants. Polymerization of olefins using a silica-phosphoric acid catalyst. 3,758,627, Cl. 260-683.15c.
Junemann, Hubert, to Adler, Kochs, AG. Template follower mechanism. 3,757,711, Cl. 112-121.120.
Junggren, Ulf Krister: *See*—
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Kablaoui, Mahmoud S. Aromatization of cyclohexene derivatives. 3,758,589, Cl. 260-590.000.
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Kabushikikaisha Oichidenkikosakusho: *See*—
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Kachelhoffer, Jean, to Institut National de la Sante et de la Recherche Medicale. Device for producing a pulsating flow of a fluid. 3,758,237, Cl. 417-394.000.
Kadota, Tokuzo, to Matsushita Electric Industrial Co., Ltd. Toroidal deflection yoke. 3,758,888, Cl. 335-210.000.
Kaercher, William C., Jr., to Jacobson Manufacturing Company. Wire and tape laying machine employing oscillatory trenching blade and oscillatory feed device. 3,757,529, Cl. 61-72.600.
Kaercher, William C., Jr., to Jacobsen Manufacturing Company. Gripping device for use in laying pipes and tubes. 3,758,146, Cl. 294-94.000.
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Kalisiak, Witold, to Biuro Konstrukcyjno-Technologiczne Maczyn i Urzadzen Budowlanych. Method of pneumatic suction conveying of disintegrated materials and an arrangement for application of this method. 3,758,163, Cl. 302-58.000.
Kalopissis, Gregoire; Abegg, Jean-Louis; Ghilardi, Guiliana; and De Beaulieu, Henri Philippe, to Societe Anonyme dite: L'Oreal. Product for treating hair. 3,757,804, Cl. 132-7.000.
Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, to Societe Anonyme dite: L'Oreal. Dyeing keratinous fibers and setting hair with indamines, salts thereof and cosmetic resin and compositions therefor. 3,758,268, Cl. 8-11.000.
Kalopissis, Gregoire; and Bugaut, Andree, to Societe Anonyme dite: L'Oreal. N-(Haloalkyl)-benzene and para-toluene. 3,758,573, Cl. 260-556.0ar.
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Kampf, Gunther; and Volz, Hans-Georg, to Bayer Aktiengesellschaft. Measurement pneumatically of thicknesses of coatings. 3,757,563, Cl. 73-37.500.
Kanamaru, Toshiji, to Matsushita Electric Industrial Co., Ltd. Remote-control tuning system. 3,758,864, Cl. 325-392.000.
Kanda, Tetsuo: *See*—
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Kandler, Joachim; Merkenich, Karl; Henning, Klaus; and Pirig, Wolf-Dieter, to Knapsack Aktiengesellschaft. Production of polyphosphate hydrated to an extent of more than % and having an apparent density of between 400 and 600 grams/liter. 3,758,671, Cl. 42-315.000.
Kaneda, Isao, to New Nippon Electric Company Ltd. Starting circuit for discharge lamps. 3,758,818, Cl. 315-207.000.
Kanetaka, Junichi; Shimodaira, Takashi; and Mori, Shoichiro, to Mitsubishi Petrochemical Co., Ltd. Hydrogenation catalyst. 3,758,512, Cl. 260-343.600.
Kanie, Shiomi; Shoji, Takeo; Nogi, Isao; and Mitani, Taizo, to Canon Kabushiki Kaisha. Fitting device for the accessories of a camera. 3,758,198, Cl. 350-257.000.
Kantorovich, Leonid Vitalievich; Tolstiev, Valery Petrovich; and Fet, Yakov Iliich. Digital serial arithmetic unit. 3,758,767, Cl. 235-159.000.
Kanunov, Mikhail Alexeevich: *See*—
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich; Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.
Kao Soap, Ltd.: *See*—
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Kapers, William John, Jr., to Bell Telephone Laboratories, Incorporated. Digital deflection system for cathode ray tubes. 3,758,825, Cl. 315-276.00d.
Kaplan, Irving Leonard, to Krasny, Carl, & Associates, Inc. Bar unscrambler. 3,757,964, Cl. 214-1.0pb.
Kapsambelis, Christos Basil; and Ugalde, Clyde Francis, to Computer Identics Corporation. Automatic vehicle identification. 3,758,752, Cl. 236-61.11e.
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, to Merck & Co., Inc. N-Acyl-α-hydrazino-hydrocinnamic acid and derivatives. 3,758,560, Cl. 260-519.000.
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Karol, Joseph A., to Avco Corporation. Simplified follower servomechanism. 3,757,640, Cl. 91-49.000.
Kaspar, Emanuel: *See*—
Philippson, Rainer; and Kaspar, Emanuel, 3,758,523.
Kaspar, Peter D., to International Playtex Corporation. Method for the continuous formation of foraminous elastomeric sheet material from a coagulable liquid. 3,758,651, Cl. 264-39.000.
Kasper, Klaus B.: *See*—
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Kasztreiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, to Gyogyszerkutato Intezet. Methoxy amine derivatives and process for preparing them. 3,758,546, Cl. 260-471.00r.
Katayama, Shitomi: *See*—
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Kato, Kiyoakira: *See*—
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Kato, Saburo, to Ricoh Co., Ltd. Spiral track magnetic recording and reproducing apparatus. 3,758,120, Cl. 274-4.00j.
Kato, Yasumasa: *See*—
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Katsibas, Themistoklis, to Reichhold-Albert-Chemie Aktiengesellschaft. Process for the manufacture of epoxy-modified polyurethane resins which can be diluted with water or dispersed in water. 3,758,427, Cl. 260-190.0ep.
Katsume, Tetsuo: *See*—
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Katz, Klaus: *See*—
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Kaufman, Edward L. Disposable half-mask respirator. 3,757,777, Cl. 128-146.200.
Kautz, Wilbert G.; and German, Dale F., to Aro Corporation, The. Hot melt liquefying and pumping mechanism. 3,758,003, Cl. 222-146.00r.
Kawada, Toshio; Torama, Tadashi; and Kobayashi, Tamio, to Matsushita Electric Industrial Co., Ltd. Cartridge type magnetic tape recording and reproducing apparatus. 3,758,789, Cl. 307-116.000.
Kawaguchi, Toshio: *See*—
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Kawaharasaki, Yoichi, to Victor Company of Japan, Limited. Automatic cassette changing and playing apparatus. 3,758,122, Cl. 274-4.00f.
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Kawasaki, Yuzo: *See*—
Izumi, Yusuke; Kawasaki, Yuzo; and Tani, Mitsuo, 3,758,615.
Kawawa, Takaho; Kamata, Masamoto; and Hirasawa, Takeshi, to Nippon Kokan Kabushiki Kaisha. Method of roughing slab to predetermined width and apparatus thereof. 3,757,556, Cl. 72-234.000.
Kayser, Allan J. Theft prevention device for trailers. 3,757,550, Cl. 70-232.000.
Kazachkov, Lev Yakovlevich; and Lesokhin, Jury Abramovich. Hydraulic pump-turbine. 3,758,225, Cl. 415-69.000.
Keis, Heinz; and Veeh, Karl, to Glaswerk Schuller GmbH. Method and apparatus for inserting vitreous fibrous material into liquid bath in web forming system. 3,758,375, Cl. 162-156.000.
Keiter, Marlin Edward, Jr., to Showell Poultry, Inc. Apparatus and method for separating hearts and livers from a mixture thereof. 3,757,945, Cl. 209-114.000.
Kell, Nathaniel B., to General Motors Corporation. Directional shift inhibitor. 3,757,822, Cl. 137-625.610.
Keller, C., u. Co.: *See*—
Wiewel, Josef, 3,757,623.
Keller, Daniel Franklin, to Keller-Dee Research and Development. Wave deflecting device for a sea wall. 3,757,527, Cl. 61-49.000.
Keller, Hans; and Knop, Hans-Georg. Method for obtaining electronic color correction signals. 3,758,707, Cl. 178-5.20a.
Keller, Hans W., to Honeywell Inc. Method for batch fabricating semiconductor devices. 3,757,414, Cl. 29-580.000.
Keller, Richard C.: *See*—
Doyle, Michael A.; Cree, Roger W.; and Keller, Richard C., 3,757,530.
Keller-Dee Research and Development: *See*—
Keller, Daniel Franklin, 3,757,527.
Kelley, James C.: *See*—
Parish, William R.; Kelley, James C.; Giovanetti, Albert; and Lutz, William A., 3,758,674.

Kemp, Kenneth Albert Walters; and Sosnowski, Stanislaw Jan Antoni, to C.A.V. Limited. Liquid fuel injection pumping apparatus. 3,758,240, Cl. 417-462.000.

Kennametal Inc.: *See—*
Cantz, Rolf J., 3,757,841.

Kenney, John Thomas: *See—*
Dinella, Donald; and Kenney, John Thomas, 3,758,332.

Kenney, John Thomas; and Litt, Frederic Alan, to Western Electric Company, Incorporated. Method of forming and dispersing a plurality of discrete, non-coalescing liquid metal particles in an aqueous medium. 3,758,414, Cl. 252-313.00r.

Kent Air Tool Co.: *See—*
Gunning, Samuel D., 3,757,875.

Kent, James T. Cryogenic freezer unit. 3,757,533, Cl. 62-303.000.

Kern, Edmund R.: *See—*
Menelly, Richard A.; and Kern, Edmund R., 3,758,809.

Kern, Loyd R.; and Martin, Ferman G., to Atlantic Richfield Company. Multilayer propping of fractures. 3,757,862, Cl. 166-280.000.

Kershaw, Sydney L., to Parker-Hannifin Corporation. Quick disconnect coupling. 3,758,137, Cl. 285-70.000.

Kertell, Frank W., to Walker, Brooks. Quad jet. 3,758,082, Cl. 261-23.00a.

Kessler, Cecil, to Chet Industries (Proprietary) Limited. Apparatus for producing wax match shafts. 3,758,246, Cl. 425-93.000.

Kessler, Jack L.: *See—*
Anderson, Fred J.; and Kessler, Jack L., 3,758,391.
Anderson, Fred J.; and Kessler, Jack L., 3,758,392.

Kessler, Kenneth Quentin: *See—*
French, John Lischer; Kessler, Kenneth Quentin; Funk, Welker W.; Pierrot, Victor Charles, III; and Hiseler, Stanley Robert, 3,757,837.

Keues, Henry P. C., to Luxair Inc. Air purifier and humidifier. 3,757,494, Cl. 55-234.000.

Khaitovitch, David. Method of excavating treaches of considerable width. 3,757,439, Cl. 37-195.000.

Khilnani, Ashok: *See—*
Redenbarger, Philip D.; and Khilnani, Ashok, 3,757,951.

Kibby, Robert M., to Reynolds Metals Company. Cardothermic production aluminum. 3,758,290, Cl. 75-10.00r.

Kida, Kaneaki; and Ida, Kazuyoshi, to Hitachi Metals, Ltd. Sectional forming roll having improved strength and stability. 3,757,554, Cl. 72-43.000.

Kieding, Robert B.: *See—*
Baker, Terry M.; Huthsing, Henry W.; Kieding, Robert B.; and Reddan, Edwin D., 3,757,931.

Kiefer, Hans: *See—*
Zeidler, Adolf; Kiefer, Hans; Fischer, Adolf; Hoffmann, Hans-Dieter; and Merger, Franz, 3,758,477.

Kilgore Corporation: *See—*
McManus, Hugh D.; Wigal, Voorhis F.; and Long, Robert S., 3,757,631.

Killick, Donald Edward: *See—*
Bateman, Douglas Alfred; Burrell, Geoffrey John; and Killick, Donald Edward, 3,758,211.

Kim, Raymond W. H.: *See—*
Thomsen, Jack W.; Nupnau, Arthur E.; Kim, Raymond W. H.; and Cherniavskyj, Jaroslav, 3,758,047.

Kim, Young Kwon: *See—*
Spitsbergen. James C.; and Kim, Young Kwon, 3,758,639.

Kimbel, Karl-Heimz: *See—*
Ufer, Joachim; Kimbel, Karl-Heimz; and Lachnit, Ursula, 3,758,687.

Kimberly-Clark Corporation: *See—*
Frick, Richard H., 3,758,363.

Kimoto, Youichi: *See—*
Hirao, Osamu; and Kimoto, Youichi, 3,757,886.

Kind, Dieter: *See—*
Kind, Dieter; and Hartel, Hagen, 3,758,790.

Kind, Dieter; and Hartel, Hagen, to Kind, Dieter. Circuit arrangement for the current-limiting interruption of current. 3,758,790, Cl. 307-136.000.

King, James R., Jr.: *See—*
Cohen, Hyman L.; King, James R., Jr.; and Minsk, Louis M., 3,758,445.

Kinley, Myron M. Fishing tool. 3,758,145, Cl. 294-86.029.

Kinney, S. P., Engineers, Inc.: *See—*
Bradel, Norman F.; and Hormel, Herbert L., 3,757,956.

Kinoshita, Ikuya: *See—*
Nakagawa, Yunosuke; Iwasa, Ichiro; and Kinoshita, Ikuya, 3,758,409.

Kirby, Harold W., to United States of America, Atomic Energy Commission. Separation of lead-210 from polonium-210 and bismuth-210. 3,758,663, Cl. 423-2.000.

Kirchner, Henry P.: *See—*
Kirchner, Henry P.; and Walker, Ralph E., 3,758,328.

Kirchner, Henry P.; and Walker, Ralph E., to Kirchner, Henry P. Method of strengthening alumina and spinel bodies. 3,758,328, Cl. 177-107.20p.

Kirkemo, Lillian F. Refrigerator guard. 3,757,958, Cl. 211-153.000.

Kiselev, Jury Vladimirovich: *See—*
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich;, Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.

Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; and Kume, Toyohiko, to Bayer Aktiengesellschaft. Halogen-substituted O,O-dialkyl O-cyanophenyl phosphates. 3,758,647, Cl. 260-940.000.

Kiss, William B.: *See—*
Wilker, Paul S.; Kiss, William B.; and Neathway, Graham A., 3,758,745.

Kisschbaum, Charles C.: *See—*
Taub, Ethel B., 3,757,934.

Kisschbaum, Charles C.; as trustees of the: *See—*
Taub, Ethel B., 3,757,934.

Kissel, Roland Roger, to Societe Anonyme Heurtey. Fluid-fuel burners. 3,758,263, Cl. 431-158.000.

Kitaguchi, Katuhiko, to Taihei Industries, Co., Ltd. Plastic saddle for bicycle. 3,758,154, Cl. 297-214.000.

Kitamura, Yoshinori, to Matsushita Electric Industrial Co., Ltd. Vertical deflection system. 3,758,813, Cl. 315-27.0td.

Kitchin, James F.; and Smith, Dalton L. Air stream exposed adjustable ram air intake horn. 3,757,751, Cl. 123-119.0cg.

Klahre, Guenter: *See—*
Seitz, Karl; Klahre, Guenter; and Scheutz, Hans-Ulrich, 3,758,467.

Klang, Daniel M.; and Mosciatti, Roger, to Bucode, Inc. Light collecting and transmitting apparatus. 3,758,197, Cl. 350-286.000.

Kleiber, Armin. Movable multiple casting moulds and elements therefor. 3,758,067, Cl. 249-129.000.

Kleiner, Eduard Karl: *See—*
Falk, Robert Allan; and Kleiner, Eduard Karl, 3,758,447.

Klemann, Lawrence P.: *See—*
Langer, Arthur W., Jr.; Whitney, Thomas A.; and Klemann, Lawrence P., 3,758,580.

Klement, Ekkehard, to Siemens Aktiengesellschaft. Carbon dioxide laser. 3,758,876, Cl. 331-94.500.

Kline, William M., to Medical Evaluation Devices & Instruments Corporation. Manipulable spring guide-catheter and tube for intravenous feeding. 3,757,768, Cl. 128-2.00m.

Kloker, Werner: *See—*
Eimers, Erich; Rudolph, Hans; and Kloker, Werner, 3,758,556.

Klose, Ulrich Konrad Wilhelm, to International Business Machines Corporation. Method and device for two-way transmission by means of two-wire transmission channel. 3,758,719, Cl. 178-58.00r.

KMS Industries, Inc.: *See—*
Thomas, Carlton E.; and Massey, Norman G., 3,758,187.

Knapsack Aktiengesellschaft: *See—*
Kandler, Joachim; Merkenich, Karl; Henning, Klaus; and Pirig, Wolf-Dieter, 3,758,671.

Kniff, August A. Automobile tow bar. 3,758,135, Cl. 280-402.000.

Knoke, Daniel R., to Appleton Mills. Single endless strand mounted in self centering fashion in a series of parallel convolutions as a fibrous web supporting surface in a papermaking machine. 3,758,381, Cl. 162-348.000.

Knoll AG, Chemische Fabriken: *See—*
Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, 3,758,484.

Knop, Hans-Georg: *See—*
Keller, Hans; and Knop, Hans-Georg, 3,758,707.

Knorpp, Charles T., to United States of America, Navy. Process of freezing blood using an hydroxyalkyl starch as cryoprote active agent. 3,758,382, Cl. 195-1.800.

Knott, Allan Roy: *See—*
Morley, Michael; and Knott, Allan Roy, 3,758,295.

Knott, Edward B.: *See—*
Bailey, Joseph; Heath, Bushey; Knott, Edward B.; and Marr, Peter A., 3,758,309.

Knowlton, Keith L. Method and apparatus for making glass fiber sprays. 3,758,285, Cl. 65-64.000.

Knutson, Dale A., to Applied Power Industries, Inc. Valve. 3,757,823, Cl. 137-625.640.

Knutson, Dale A., to Applied Power Inc. Aerial lift vehicle. 3,757,895, Cl. 182-46.000.

Kobayashi, Tamio: *See—*
Kawada, Toshio; Torama, Tadashi; and Kobayashi, Tamio, 3,758,789.

Kobayashi, Tatsuo, to Minolta Camera Kabushiki Kaisha. Electronically controlled camera shutter. 3,757,655, Cl. 95-10.0ce.

Kobe, Inc.: *See—*
Erickson, John W.; and Brown, Francis Barton, 3,758,238.

Kobori, Toshio: *See—*
Kuramoto, Yoshio; Kobori, Toshio; and Ueda, Hiroshi, 3,757,660.

Koch, Werner; and Preuss, Friedrich, to Roland Offsetmaschinenfabrik Faber & Schleicher A.G. Adjustable assembly for a dampening roller of an offset printing press. 3,757,689, Cl. 101-148.000.

Kocks, Friedrich. Kilns. 3,758,089, Cl. 266-18.000.

Koehn, Frederick F.: *See—*
Feurston, Ludwig J.; and Koehn, Frederick F., 3,757,486.

Koerper Engineering Associates, Inc.: *See—*
Gerber, Karol, 3,758,244.

Koester, Charles J., to American Optical Corporation. Image-transmitting optical system. 3,758,188, Cl. 350-96.000.

Kogler, Werner; Kohler, Werner; and Abou-Zied, Aly, to Siemens Aktiengesellschaft. Insulated bus-bar assembly having a branch connection. 3,758,702, Cl. 174-71.00b.

Kohler, Arthur. Nozzle head assembly for injection mold. 3,758,252, Cl. 425-242.000.

Kohler, Werner: *See*—
Kogler, Werner; Kohler, Werner; and Abou-Zied, Aly, 3,758,702.

Kohn, Karl Walter, to Societe d'Etudes de Machines Thermiques. Handling device for mounting or removing an access door. 3,758,174, Cl. 308-3.00r.

Kolhi, Martti Ilmari, to Collin, R., Consulting AB. Method for combusting fuels in a substantially conically shaped curtain. 3,758,258, Cl. 431-9.000.

Kolin, Alexander, to University of California, The Regents of the. External field electromagnetic flow sensor-artery gauge. 3,757,773, Cl. 128-2.05f.

Kombinat fur Polygraphische Maschinen und Ausrustungen Leipzig: *See*—
Skiera, Heinz; and Schumann, Helmut, 3,757,690.

Konig, Klaus; Muller, Erwin; Muhlhausen, Cornelius; and Dobereiner, Uwe Jens. Process for the production of polyurethane elastomers based on a particular polyol polycarbonate. 3,758,443, Cl. 260-75.0np.

Koppers Company, Inc.: *See*—
Toperzer, John W.; and Beachy, Dale K., 3,757,849.
Weinberger, Carl S.; and Hale, William T., 3,758,124.

Korn, Joseph: *See*—
Schurig, Robert E.; and Korn, Joseph, 3,758,033.

Koshar, Robert J., to Minnesota Mining and Manufacturing Company. Functional bis (perfluoroalkylsulfonyl) alkyl compounds. 3,758,531, Cl. 260-400.000.

Koshar, Robert J.; Husted, Donald R.; Wright, Charles D.; and Zollinger, Joseph La Mar, to Minnesota Mining and Manufacturing Company. Difluoroamino compounds. 3,758,555, Cl. 260-482.00r.

Koshar, Robert J., to Minnesota Mining and Manufacturing Company. Functional bis (perfluoroalkylsulfonyl) alkyl compounds. 3,758,591, Cl. 260-607.00a.

Koshar, Robert J., to Minnesota Mining and Manufacturing Company. Functional bis (perfluoroalkylsulfonyl) alkyl compounds. 3,758,592, Cl. 260-607.00a.

Koshar, Robert J., to Minnesota Mining and Manufacturing Company. Functional bis (perfluoroalkylsulfonyl) alkyl compounds. 3,758,593, Cl. 260-607.00a.

Kosonocky, Walter Frank, to RCA Corporation. Charge coupled shift registers. 3,758,794, Cl. 307-304.000.

Kost, Erwin. Hydraulic stretch levelling machine. 3,757,557, Cl. 72-311.000.

Kosters, Paul L. M. Silencer for eliminating noise caused by a pawl on a gear rack when the gear rack is returned to a initial position. 3,757,923, Cl. 197-94.000.

Kostowski, Wojciech: *See*—
Biniecki, Stanislaw; Kubikowski, Piotr; Kostowski, Wojciech; and Nantka-Namirski, Pawel, 3,758,485.

Kouwenhoven, Harman W.; and Cole, John. Process for the preparation of mordenite. 3,758,667, Cl. 423-118.000.

Kraft, Donald E. Valve and system for dental apparatus. 3,757,421, Cl. 32-22.000.

Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, to Knoll AG, Chemische Fabriken. 3-Beta-acetoxy 11-oxo norolеanene(12) 20 beta-carboxylic acid, N-methyl piperidol-(4) ester. 3,758,484, Cl. 260-293.560.

Kramer, George M., to Esso Research and Engineering Company. Isomerization solvents. 3,758,623, Cl. 260-668.00a.

Kramer, James H., to Goodrich, B. F., Company, The. Conveyor belt suspension. 3,757,930, Cl. 198-192.000.

Krasny, Carl, & Associates, Inc.: *See*—
Kaplan, Irving Leonard, 3,757,964.

Kraus, Theodore C.; and Mangold, Donald J., to Olin Mathieson Chemical Corporation. Process preparation of non-solvated aluminum hybrid. 3,758,677, Cl. 423-645.000.

Kreissig, Ernst Florian; and Feuerlein, Karl, to Sulzer Brothers, Ltd. Railway car roll controlled by fluid spring controller assembly. 3,757,702, Cl. 105-210.000.

Kressley, Leonard J.: *See*—
Frevel, Ludo K.; and Kressley, Leonard J., 3,758,666.

Kretchmer, Murray. Therapeutic Murray. 3,757,365, Cl. 5-338.000.

Krieger, A. P. Tool silencing means. 3,757,891, Cl. 181-33.00k.

Krieger, Charles: *See*—
Sieger, George Madison; Shultz, Walter; and Krieger, Charles, 3,758,686.

Krimm, Heinrich: *See*—
Buysch, Hans-Josef; Krimm, Heinrich; and Margotte, Dieter, 3,758,597.

Kroll, Arthur W., to Veeder Industries, Inc. Versatile modules enclosure with extruded wall sections. 3,758,829, Cl. 317-117.000.

Kroll, Glenn H., to Sears Roebuck and Co. End caps for gym. 3,757,826, Cl. 138-89.000.

Krone GmbH: *See*—
Harms, Wolf-Henning, 3,758,725.

Kruklitis, Karlis, to Burroughs Corporation. Multiple transducer magnetic head. 3,758,727, Cl. 179-100.20c.

Krummel, Harry Karl: *See*—
Connor, Daniel S.; and Krummel, Harry Karl, 3,758,420.

Kruse, Friedel; Wahle, Gunter; Rudszinat, Willy; and Erdmann, Otto, to Hauni-Werke Korber & Co., KG. Apparatus for severing sheet-like materials in machines for the processing of smokers product. 3,757,624, Cl. 83-271.000.

Ksieski, Kazimierz T., to Parker-Hannifin Corporation. Omega seal. 3,758,123, Cl. 277-206.000.

Kubiatowicz, David O.: *See*—
Lindsay, Thomas W.; and Kubiatowicz, David O., 3,758,678.

Kubikowski, Piotr: *See*—
Biniecki, Stanislaw; Kubikowski, Piotr; Kostowski, Wojciech; and Nantka-Namirski, Pawel, 3,758,485.

Kubo, Tomoichi; Itazu, Masakatsu; and Yamashita, Hirofumi, to Nippon Electric Company, Limited. Cathode ray tube having a glass envelope counted with crystallized glass. 3,758,802, Cl. 313-64.000.

Kubola, Seishi; Kunugi, Takashi; and Katsume, Tetsuo, to Nissan Motor Company, Limited. Control system for gas turbine engine. 3,757,610, Cl. 74-843.000.

Kuciejcik, James S.: *See*—
Ritchie, David Alan; and Kuciejcik, James S., 3,758,274.

Kudamatsu, Akio: *See*—
Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; and Kume, Toyohiko, 3,758,647.

Kudlacik, Henry W., to General Electric Company. Field excitation circuit for a dynamoelectric machine. 3,758,842, Cl. 322-25.000.

Kueneker, William: *See*—
Holstein, Alvin W.; Short, William H.; and Kueneker, William, 3,757,669.

Kuhn, Wenzel: *See*—
Pfuller, Peter; and Kuhn, Wenzel, 3,758,498.

Kuipers, Johannes: *See*—
Daams, Jasper; Kuipers, Johannes; and Pluijgers, Christoffel Willem, 3,758,468.

Kukolja, Stephan P.; and Morin, Robert B., to Lilly, Eli, and Company. Process for preparing thiazole derivatives. 3,758,488, Cl. 260-302.00r.

Kulp, Jack H., to Royal Industries, Inc. Device for storing and dispensing ribbon-like materials and the like. 3,757,626, Cl. 83-542.000.

Kume, Toyohiko: *See*—
Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; and Kume, Toyohiko, 3,758,647.

Kumm, Emerson L., to Garrett Corporation, The. Variable speed belt transmission. 3,757,594, Cl. 74-230.17f.

Kun, Leslie C.; and Wulf, James B., to Union Carbide Corporation. Primary surface heat exchanger. 3,757,855, Cl. 165-166.000.

Kun, Leslie C., to Union Carbide Corporation. Primary surface heat exchanger and manufacture thereof. 3,757,856, Cl. 165-166.000.

Kunert, Heinz, to Saiak-Gebain. Shattering frangible objects, particularly plates. 3,757,988, Cl. 220-47.000.

Kunioka, Kazuo: *See*—
Shimotsuma, Teruo; Kunioka, Kazuo; and Yamada, Takeo, 3,758,090.

Kuntz, John B.; and Spinola, Anthony A., to United States Steel Corporation. Method of quenching slag. 3,758,292, Cl. 75-24.000.

Kunugi, Takashi: *See*—
Kubola, Seishi; Kunugi, Takashi; and Katsume, Tetsuo, 3,757,610.

Kunzel, Hans-Egon; Bentz, Francis; and Nischk, Gunther, to Bayer Aktiengesellschaft. Aromatic polyimides with increased solubility. 3,758,434, Cl. 260-30.200.

Kuramoto, Yoshio, to Minolta Camera Kabushiki Kaisha. Single lens reflex camera. 3,757,656, Cl. 95-11.00v.

Kuramoto, Yoshio; Kobori, Toshio; and Ueda, Hiroshi, to Minolta Camera Kabushiki Kaisha. Photographic camera capable of making multiple exposures. 3,757,660, Cl. 95-31.0ac.

Kuraray Co., Ltd.: *See*—
Denda, Rokuro; and Kawaguchi, Toshio, 3,758,611.

Kurihara, Kazuo: *See*—
Aya, Masahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Morishima, Norihisa, 3,758,481.

Kuroda, Minoru, to Nishizawa Shoji Co., Ltd. and Dimension Weld International Corporation, The. Method of and apparatus for making a padded three-dimensional applique. 3,758,358, Cl. 156-222.000.

Kurth, Johannes; and Glaser, Josef, to Ferdrowitz, Wilhelm and Mannesmann Aktiengesellschaft. Device for adjusting the position of a mold for continuous casting in a stand. 3,757,405, Cl. 29-200.00p.

Kusters, Eduard, Maschinenfabrik: *See*—
Urban, Peter T., 3,757,398.

Kuts, Mathew, to Goodrich, B. F., Company, The. Fabric cutting. 3,757,618, Cl. 83-471.300.

Kutscher, Gerhard; and Wehling, Rolf, to Fried. Krupp Gesellschaft mit beschrankter Haftung. Apparatus for the spinning of staple fibers in a ringless manner. 3,757,506, Cl. 57-58.950.

Kuwana, Kazutaka; Yamazaki, Hayao; and Sato, Takefumi, to Aisin Seiki Kabushiki Kaisha and Sharp Corporation. Process and apparatus for antiskid control mechanism. 3,758,166, Cl. 303-21.00p.

Kvam, Donald C.: *See*—
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,758,490.
Robertson, Jerry E.; Harrington, Joseph K.; and Kvam, Donald C., 3,758,688.

Kyorin Seiyaku Kabushiki Kaisha: *See*—
Irikura, Tsutomu; Abe, Yasuo; Okamura, Kyuya; Higo, Kyomehi; Maeda, Akitoshi; and Morinaga, Fumihiko, 3,758,471.

Laama, Vello; and Grahn, Robert Donald, to Sunbeam Corporation. Expresso coffeemaker. 3,757,670, Cl. 99-302.000.

Laarman, Johannes Bertus, to N.V. Industrieele Handelscombinatie. Pipeline with floats. 3,757,369, Cl. 9-8.00r.

Labana, Santokh S.; and Theodore, Ares N., to Ford Motor Company. Powdered coating composition of unsaturated glycidyl and anhydride copolymer and a flow control agent. 3,758,632, Cl. 260-836.000.

Labana, Santokh S.; Golovoy, Amos; and Newman, Seymour, to Ford Motor Company. Powdered coating compositions of carboxy containing copolymers, epoxy crosslinking agents and flow control agents. 3,758,633, Cl. 260-836.000.

Labana, Santokh S.; and Newman, Seymour, to Ford Motor Company. Powdered coating composition of unsaturated glycidyl copolymer, flow control agents and diphenolic crosslinking agents. 3,758,634, Cl. 260-836.000.

Labana, Santokh S.; Chang, Yun Feng; and Theodore, Ares N., to Ford Motor Company. Powdered coating compositions of unsaturated glycidyl copolymers with flow control agents. 3,758,635, Cl. 260-836.000.

Labbe, Francis Auguste Maurice, to Molins Machine Company, Limited. Smoke filters. 3,757,649, Cl. 93-1.00c.

Labofina, Soc. An.: *See—*
De Radzitzky D'Ostrowick; Hanotier, Jacques D. V.; and Vaerman, Joseph M. E., 3,758,557.

Lacey, Robert Ronald, to Universal Oil Products Company. Adjustable seats for trucks, coaches and other vehicles. 3,758,063, Cl. 248-161.000.

Lachnit, Ursula: *See—*
Ufer, Joachim; Kimbel, Karl-Heimz; and Lachnit, Ursula, 3,758,687.

LaFond, Gerard L.: *See—*
Moore, Wilcy I.; and LaFond, Gerard L., 3,757,887.

Lagier, Michel; and Reynier, Rene, to Thomson-CSF. Sonar transducer housing. 3,757,888, Cl. 181-.50a.

Lagow, Richard J.: *See—*
Margrave, John L.; and Lagow, Richard J., 3,758,450.

Lake, Gary F. Circular table and seat construction. 3,758,152, Cl. 297-157.000.

Lake, John W., to Omark Industries, Inc. Chuck assembly for stud welding apparatus. 3,758,743, Cl. 219-98.000.

Lambert, Gerard L.; and Greenlay, Charles A., to Johns-Manville Corporation. Method of removing contents from container. 3,757,973, Cl. 214-152.000.

Lambert, Robert R., to Wehr Corporation, mesne. Ceiling tile plenum boundary suspended ceiling construction. 3,757,666, Cl. 98-40.00d.

Lambert, Robert R., to Wehr Corporation, mesne. Pulg-in air diffuser subassembly for a variety of suspended ceiling framework. 3,757,667, Cl. 98-40.00d.

Lambert, William M. Method of reducing dependence on tobacco. 3,757,798, Cl. 131-1.000.

Lamberti, Vincent; and Lemaire, Henry, to Lever Brothers Company. Detergent. 3,758,595, Cl. 260-609.00r.

Lampert, Rolf: *See—*
Puhahn, Werner; and Lampert, Rolf, 3,757,805.

Landoni, Giannino. Automatic quilting machine. 3,757,710, Cl. 112-118.000.

Landry, Norman R.; and Grabowski, Joseph P., to United States of America, Navy, mesne. Versatile in line waveguide to coax transition. 3,758,886, Cl. 333-97.00r.

Lane, Thomas A.: *See—*
Lang, Theo O.; and Lane, Thomas A., 3,758,371.

Laney, Campbell P., Jr.; White, William Thomas; and Mercer, Harry L., to Stevens, J. P., & Co., Inc. Padding apparatus with anti-flowback guide. 3,757,545, Cl. 68-43.000.

Lang, Theo O.; and Lane, Thomas A., to Foster Grant Co., Inc. Plastic net laminate material. 3,758,371, Cl. 161-88.000.

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Langer, Arthur W., Jr.; Whitney, Thomas A.; and Klemann, Lawrence P., to Esso Research and Engineering Company. Separation of tertiary chelating polyamines. 3,758,580, Cl. 260-563.00r.

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Bolick, Fred C., Jr.; and Godwin, James B., III, 3,758,726.

Lapple, Walter C.; and Matty, Robert E., to Babcock & Wilcox Company, The. SO_2 absorption system with regeneration of absorbent. 3,758,668, Cl. 423-242.000.

Larsen, Aubrey A.; and Gould, William A.; deceased (by Gould, Barbara E.; legal representative), to Mead Johnson & Company. Sympathomimetic process and compositions employing sulfonamidophenalkylamines. 3,758,692, Cl. 424-321.000.

Larsson, Erik Johan, to Barracudaverken AB. Floating boom structures. 3,757,526, Cl. 61-1.00f.

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Le Bar, Philip A., Jr., to General Motors Corporation. Linear governor. 3,757,809, Cl. 137-47.000.

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Leathers, Clarence H., to Grant Oil Tool Company. Large diameter hole opener for earth boring. 3,757,877, Cl. 175-269.000.

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Lederer, Michael: *See—*
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Lee, Andrew, to Hypaco, Incorporated. Cutoff and routing device. 3,757,838, Cl. 144-3.00r.

Lee, Lap Yen, to United States of America, Atomic Energy Commission. Optical-binary coded position-sensitive radiation detector. 3,758,780, Cl. 250-271.000.

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Lee, William Waltham Alfred, to Walthams (Bognor Regis) Limited. Ladders. 3,757,896, Cl. 182-164.000.

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Lehe, Russell B., to Norandex, Inc. Slatted flooring connector system. 3,757,743, Cl. 119-28.000.

Leitich, Albert J.: *See—*
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Lemaire, Henry: *See—*
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Leonard, Ronald James, to Baxter Laboratories, Inc. Multi-layer membrane type mass transfer device and process. 3,757,955, Cl. 210-321.000.

Leonard, William J., Jr.; and Holler, Howard V., to Shell Oil Company. Process for preparing a supported catalyst. 3,758,418, Cl. 252-464.000.

Lepley, Russell L.; and Motyl, Werner J. Emergency mine elevator. 3,757,701, Cl. 104-242.000.

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Les Etablissements Marechal: *See—*
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Letzer, Edward K., to Eastman Kodak Company. Masking printer. 3,758,207, Cl. 355-80.000.

Levenberg, Nathan. Apparatus for transportation and segregated emptying of vessels containing fluids of different density. 3,757,813, Cl. 137-172.000.

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Lipchik, Harold; and Racicot, Ernest G., to Halco Industries, Inc. Eyeglasses frame construction. 3,758,203, Cl. 351-98.000.
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Lovens Kemiske Fabrik Produktionsaktieselskab: *See*—
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Lucci, Joseph A. Trigger and bait arrangement for mouse trap. 3,757,456, Cl. 43-81.000.
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Ludwig, Robert L. Puzzle. 3,758,114, Cl. 273-159.000.
Lunde, Thomas Trygve. Log barge. 3,757,724, Cl. 114-27.000.
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Luther, Gerald J., to Baker, Perkins, Inc. Motion sensing apparatus for food handling or the like. 3,757,925, Cl. 198-37.000.
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Ma, James C. N. Chromatographic adsorbents. 3,757,490, Cl. 55-67.000.
Mabuchi, Kenichi, to Mabuchi Motor Co., Ltd. System for safely lowering an electric model plane. 3,757,462, Cl. 46-243.0av.
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Machlett Laboratories, Incorporated, The: *See*—
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MacManus, John. Machine for producing aerated products. 3,758,080, Cl. 259-4.000.
MacMillan Bloedel Limited: *See*—
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Magoto, Kenneth L. Transfer light sign. 3,757,444, Cl. 40-130.00b.
Magritz, Steven A., to ESB Incorporated. Silver zinc button cell. 3,758,343, Cl. 136-111.000.
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Malen, Charles; Danree, Bernard; and Poignant, Jean-Claude, to Societe en nom Collectif Science Union et Cie Societe Francaise de

Recherche Medicale. Tricyclic compounds. 3,758,528, Cl. 260-404.000.

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Malloy, John D., to General Motors Corporation. Multi-speed transmission. 3,757,607, Cl. 74-761.000.

Malone, William T.; Holtmyer, Marlin D.; Tinsley, John M.; and Chatterji, Jiten, to Halliburton Company. Methods and compositions for reducing frictional pressure loss in the flow of hydrocarbons liquids. 3,758,406, Cl. 252-8.55r.

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Manzo, Joseph. Orthopedic device. 3,757,807, Cl. 135-475.000.

Marathon Oil Company: *See*—
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Marble, Orlin G. Air conditioning converter accessory for motor vehicles. 3,757,851, Cl. 165-41.000.

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Marley Company, The: *See*—
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Martell, Arthur E. Ferric chelates of N-(2-hydroxybenzyl) substituted aminopoly carboxylic acids. 3,758,540, Cl. 260-439.00r.

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Martin, Henry; and Pissiotas, Georg, to Ciba-Geigy AG. Alpha-bromoacrylic acid toluidides. 3,758,579, Cl. 260-562.00b.

Martin, James. Survival or like packs particularly suitable for airmen. 3,757,371, Cl. 9-316.000.

Martin, Joseph. Five-axis shaper. 3,757,638, Cl. 90-46.000.

Martinetz, Johann, to Mayer & Cie, Firma. Multi-system circular knitting machine with needle cylinder and disc plate. 3,757,538, Cl. 66-19.000.

Martinez, Antero; and Martinez, Estrella. Fish lure. 3,757,450, Cl. 43-35.000.

Martinez, Estrella: *See*—
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Martino, Lawrence A., to Monsanto Company. Method for blow molding an article having a tail portion which can not collapse against an adjoining wall of the article. 3,758,654, Cl. 264-98.000.

Marxer, Adrian, to Ciba-Geigy Corporation. Esters of 1-aminoalkylcycloalkanols. 3,758,527, Cl. 260-404.000.

Maslow, Louis. Adjustable shelving. 3,757,705, Cl. 108-144.000.

Mason, Ronald F.; and Wicker, Gordon E., to Shell Oil Company. Ortho-diphenylphosphinobenzoic acid production. 3,758,558, Cl. 260-515.00m.

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Matyas, Joseph F. Fretted instrument fingerboard chord slide rule. 3,758,698, Cl. 84-485.000.

Maue, Bertrand Yves Hiffolyte; and Omer, Grebert Robert Emmanuel, to Etat Francais represente par le Ministre Charge de la Defense Nationale. Igniting device for a rocket, and its mounting thereon and manufacture. 3,757,692, Cl. 102-49.700.

Maurin, Jean, to Compagnie Francaise de Raffinage. Dehydration of diols using lithium phosphate catalyst. 3,758,612, Cl. 260-681.000.

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Maust, John Edward, Jr.; Honnold, Darrel Lee; and Jackson, William Wayne, to Deere & Company. Minimum tillage agricultural implement. 3,757,871, Cl. 172-178.000.

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Menzin, Marvin; Blanz, John H.; Harvey, Andrew C.; and Rhee, Sang Soon, to American Velcro, Inc., mesne. Production of a continuous molded plastic strip. 3,758,657, Cl. 264-166.000.

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Nagahiro, Michinori; Yabu, Toshiomi; Hosono, Hiroo; and Ushihara, Masharu, to Matsushita Electric Industrial Co., Ltd. Magnetic recording and reproducing apparatus. 3,758,009, Cl. 226-11.000.
Nakada, Katuharu: *See—*
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Nakagawa, Kanenari; and Yuki, Hidero, to Automa Engineering Co., Ltd. Rail vehicle with electromagnet engaging belt drive. 3,757,700, Cl. 104-165.000.
Nakagawa, Yunosuke; Iwasa, Ichiro; and Kinoshita, Ikuya, to Kao Soap, Ltd. Cleaning and bleaching liquid composition. 3,758,409, Cl. 252-99.000.
Nakajima, Toshihiko: *See—*
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Nakamura, Akiya: *See—*
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Naud, John Raymond, to Wire Rope Industries of Canada Ltd. Hoisting rope. 3,758,704, Cl. 174-102.00e.
Neathway, Graham A.: *See—*
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Nelson, Ronald H., Sr.: *See—*
Bethke, Robert P.; Mac Fadden, David P.; Nelson, Ronald H., Sr.; and Ross, Steven G., 3,758,024.
Neovius, Torsten Otto; and Svensson, Karl-Erik, to Telefonaktiebolaget L M Ericsson. Apparatus for changing the relative position of the conductors during the manufacture of a telecommunications cable. 3,757,505, Cl. 57-34.00r.
Nepon, Juanita Edna. Quilting and beading frame. 3,757,395, Cl. 28-15.000.
Neudeck, Herbert D.; and Thalacker, Ronald A., to Amana Refrigeration, Inc. Shipping mount for room air conditioners. 3,758,058, Cl. 248-20.000.
New Nippon Electric Company Ltd.: *See—*
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Newby, Gordon L. Chopper for forming rubber slugs. 3,758,249, Cl. 425-155.000.
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Newport, Harry E., Jr.; and Wright, James A., to Emerson Electric Co. Burner flame detection circuit. 3,758,260, Cl. 431-78.000.
Newswanger, Paul S. Automatic vise jaw. 3,758,097, Cl. 269-27.000.
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Nikles, Otho Leroy, Jr., to Resyn Corporation. Emulsifying curing agents for water dilutable epoxy resin systems. 3,758,421, Cl. 260-2.00n.
Nilson, Alfred M., to Magnavox Company, The. Single tube color camera with crossed grid grating with adjacent line signal averaging to eliminate vertical scene modulation. 3,758,709, Cl. 178-5.4st.
Nilsson, Karl-Ivar Sigurd, to Granges-Essem, AB. Locking device for vehicle safety belts. 3,758,044, Cl. 242-107.400.
Nippon Electric Company, Limited: *See—*
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Nippon Gakki Seizo Kabushiki Kaisha: *See—*
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Nogi, Isao: *See—*
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Nohara, Haruo; and Makino, Junichi, to Hitachi, Ltd. Method of digitally processing sinusoidal AC signals. 3,758,763, Cl. 235-151.000.
Noll, Klaus: *See—*
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Northway, Clarence E.; and Pegg, Ronald L., to Haveg Industries, Inc. Porous fibrous substrate structure produced in oxidizing atmosphere. 3,758,352, Cl. 156-60.000.
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Pirk, Hans; Muller, Henricus; and Hackstein, Karl, 3,758,280.
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Oakes, Harry C. Drill bit. 3,758,222, Cl. 408-224.000.
O'Brien, James E.; and Schmidt, Emerson E., to Bendix Corporation, The. Flaw or chip detector. 3,757,569, Cl. 73-104.000.
O'Brien, William James: *See—*
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Ogata, Masaru, to Shionogi and Company, Ltd. 1,2-Epoxy-methano-A-norsteroid compounds and process for preparation thereof. 3,758,507, Cl. 260-333.000.
Ohishi, Yasuhiro. Underwater craft for transporting divers. 3,757,721, Cl. 114-16.00a.
Ohrberg, Carl Verner, to Danfoss A/S. Rotary piston machine. 3,758,242, Cl. 418-61.000.
Ohtani, Yoshio 54 Diesel Kiki Kabushiki Kaisha. Electronic governor for injection-type internal combustion engines. 3,757,750, Cl. 123-102.000.
Okabe, Katsuhiko, to Kabushikikaisha COPAL. Instantaneous intermittent feeding mechanism. 3,757,592, Cl. 74-112.000.
Okada, Motohiro, to Honda Giken Kogyo Kabushiki Kaisha. Shock absorbing air bag apparatus in a motor car. 3,758,133, Cl. 280-150.0ab.
Okamoto, Toyoo, to Kabushiki Kaisha Ricoh. Sheet catch tray for automatic sheet feeding apparatus. 3,758,105, Cl. 271-170.000.
Okamura, Kyuya: *See—*
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Oleck, Stephen M.; Schwartz, Albert B.; and Stover, William A., to Mobil Oil Corporation. Catalytic hydrocracking of hydrocarbons. 3,758,402, Cl. 208-111.000.
Oliapuram, Antony, to Varta Aktiengesellschaft. Method of producing an electrolytic-cell electrode with active iron mass. 3,758,344, Cl. 136-120.0fc.
Olin Mathieson Chemical Corporation: *See—*
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Olinkraft, Inc.: *See—*
Coons, Everett A.; Poggiali, Lewis D.; and Jacalone, Richard P., 3,757,935.
Oliver, Bernard M., to Hewlett-Packard Company. Power supply utilizing improved voltage regulation. 3,758,840, Cl. 321-2.000.
Olney, Nathaniel M.; Hurkmans, Antoon M.; Barrett, Edward E.; and Leff, Martin J., to Swingline Inc. Tacker. 3,758,016, Cl. 227-132.000.
Olson, Donald R.; and Waddell, Eugene P., to Allis-Chalmers Corporation. Division head curtain for compartmented grinding mill. 3,758,041, Cl. 241-153.000.
Olthuis, Eugene G., to General Electric Company. Centrifugally responsive dispenser for washing machine. 3,757,544, Cl. 68-17.00a.
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Orain, Michel, to Societe Anonyme: Glaenzer Spicer. Universal joints. 3,757,534, Cl. 64-8.000.
Orenstein, Nathan: *See—*
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Organ, Glenn Edward, to Celanese Corporation. Removal of iron impurities. 3,758,566, Cl. 260-531.00r.
Orlick, John, to Hunt, Rodney, Company. Knock-off device. 3,757,547, Cl. 68-176.000.
Orr, James D. Pressure relief valve. 3,757,815, Cl. 137-475.000.
Orr, Manfred: *See—*
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Otani, Sigeru; Honda, Fuminori; and Mitani, Kiyoto, to Teijin Limited. Temperature measuring apparatus for heating roller. 3,758,738, Cl. 219-10.490.
Ott, Hans: *See—*
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Owen, David F. Detoxification and isolation of rapeseed protein by aqueous saline extraction and isoelectric protein precipitation. 3,758,452, Cl. 260-123.500.
Owen, Keith; and Roberts, Geoffrey A. H., to Esso Research and Engineering Company. Fuel compositions. 3,758,282, Cl. 44-69.000.
Owen, William John: *See—*
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Taylor, Lynn J., 3,758,423.
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Owyoung, Sheldon; and Lowrey, Maurice H., to De Laval Turbine California, Inc. Automatic engine starting system. 3,757,756, Cl. 123-179.00g.

Ox Products, Inc.: *See*—
Oxbery, John W., 3,758,205.

Oxbery, John W., to Ox Products, Inc. Photographic stand. 3,758,205, Cl. 355-18.000.

Oxy Metal Finishing Corporation, mesne: *See*—
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Pabodie, Robert M.: *See*—
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Paclik, George F.: *See*—
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Paddock, Charles F., to Uniroyal, Inc. Rubber bonding cement for bonding EPDM to general purpose rubber. 3,758,435, Cl. 260-33.60a.

Padmanathan, Thurairajah, to American Cyanamid Company. 1,3,2-Oxazaborinides and method for preparing the same. 3,758,489, Cl. 260-304.000.

Paffrath, Edgar C.: *See*—
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Paget, Fredrick W., to GTE Sylvania Incorporated. Supplemental energy storage circuit for arc discharge lamps. 3,758,815, Cl. 315-101.000.

Pagliaro, James M., to Compact Closures, Inc. Overhead stacked folding door. 3,757,845, Cl. 160-189.000.

Pais, George S. Autocombine engine. 3,757,515, Cl. 60-13.00f.

Pak-Well Corporation: *See*—
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Pallos, Ferenc M., to Stauffer Chemical Company. Certain phosphorus containing amidine compounds as insecticides and acaricides. 3,758,685, Cl. 424-211.000.

Palmenberg, Edward C., to Chromalloy American Corporation. Classification gage for turbine vanes. 3,757,424, Cl. 33-174.00c.

Palmer, Dale A., to Monroe Auto Equipment Co. Shock absorber and compression valve assembly. 3,757,910, Cl. 188-322.000.

Palmer, William E. Wave-powered aerator. 3,758,083, Cl. 261-25.000.

Pangalila, Frans V. A., to McMullen, John J., Associates, Inc. Fixed-angle stabilizing fin system. 3,757,723, Cl. 114-126.000.

Panteleimonov, Vladimir Mikhailovich: *See*—
Ryss, Jury Samuilovich; Ovchinnikova, Tamara Mikhailovna; Gavrilov, Jury Georgievich; Voronin, Dmitry Vyacheslavovich; and Panteleimonov, Vladimir Mikhailovich, 3,758,846.

Pappas, Michael; Witte, Paul A.; and Johnson, Thomas, to Falcon Safety Products, Inc. Gas power operated hand held acoustic devices. 3,757,731, Cl. 116-112.000.

Parechoc S.A.: *See* –
Meylan-Rochat, Andre, 3,758,178.

Pariel, Jean Marie; and Robic, Gabriel, to Societe Anonyme Heurtey and ELF-Union. Method and apparatus for incinerating polluted liquids and mud. 3,757,706, Cl. 110-7.00s.

Parish, William R.; Kelley, James C.; Giovanetti, Albert; and Lutz, William A., to Wellman-Power Gas Incorporated. Process for producing anhydrous HF from fluroactive agent. 3,758,674, Cl. 423-483.000.

Parke, Davis & Company: *See*—
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Parker-Hannifin Corporation: *See*—
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Parkhurst, Robert H.; Beck, William R.; and Bungo, Edward M., to General Motors Corporation. Vacuum tube and connector assembly. 3,757,824, Cl. 137-798.000.

Parry, Philip James: *See*—
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Parson, David, to Automotive Products Company Limited. Control valves for liquid pressure braking systems. 3,758,168, Cl. 303-52.000.

Paruolo, Miller J.; McMackin, John J.; and McMeekin, James H., to Brockway Glass Company, Inc. Aerodynamic means for raising and swirling loose objects in empty glass containers and optical means for detecting the presence of same. 3,758,215, Cl. 356-196.00.

Pascente, Joseph E., to Grigsby-Barton, Inc. Synchronous switching circuit. 3,758,793, Cl. 307-252.00b.

Passon, Philip J., to General Motors Corporation. Brake actuated throttle closure system. 3,757,913, Cl. 192-3.00r.

Patel, Narendra; and Roberts, Bernard J. Method of forming clay articles around a compressible mandrel. 3,758,653, Cl. 264-56.000.

Paterson, Ray Wesley: *See*—
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Patton, Leo Wesley: *See*—
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Pearne, Frank S., to Aircraft Mechanics, Inc. Clay pipe fitting molding apparatus. 3,758,253, Cl. 425-249.000.

Pechuk, Vasily Ivanovich; Pompeev, Vladimir Mikhailovich; and Taratukhina, Galina Petrovna. Load cell with resistance strain gauges. 3,757,573, Cl. 73-141.00a.

Pedersen, Dane Harald, to Dymo Industries, Inc. Embossing tool tape cut-off mechanism. 3,757,919, Cl. 197-6.700.

Pedersen, Harry, to Gleason Works, The. Curved surface generator. 3,757,474, Cl. 51-33.00w.

Pegg, Ronald L.: *See*—
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Pen-Cell Plastics, Inc.: *See*—
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Pendergrass, Paul E., to Tri-Tron International, mesne. Pulse imparter. 3,758,399, Cl. 204-228.000.

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Popoff, Ivan Christoff; and Thanawalla, Chandrakant Bhagwandas, 3,758,567.

Pereau, Robert E., to Smith International, Inc. Drilling and belling apparatus. 3,757,876, Cl. 175-267.000.

Peressini, Gabriele. Procedure for setting up a cocoonery for silkworms as well as removing cocoons from the cocoonery and apparatus therefor. 3,757,740, Cl. 119-6.000.

Perilstein, Warren L., to Ethyl Corporation. Gasoline compositions. 3,758,624, Cl. 260-668.00r.

Permaneer Corporation: *See*—
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Perov, Alexandr Vasilievich: *See*—
Brukovsky, Igor Pavlovich; Yakovlev, Pavel Borisovich; Gutterman, Kirill Davidovich; Perov, Alexandr Vasilievich; Hukov, Vladimir Fedorovich; Nekrasova, Larisa Petrovna; and Ivanovsky, Jury Dmitrievich, 3,758,816.

Perry, Robert Bruce: *See*—
Broeck, James Samuel Ten, Jr.; Perry, Robert Bruce; Laurance, Dale Roderic; and Fisher, John Richard, 3,758,457.

Peters, Leo. Packaging embossed-surfaced butter and margarine. 3,758,312, Cl. 99-179.000.

Peters, Thomas E., to GTE Laboratories, Incorporation. Terbium activated yttrium silicate phosphors. 3,758,413, Cl. 252-301.40f.

Peterson, David R.; and Conragan, James, to Signetics Corporation. Solid state bistable switching device and method. 3,758,797, Cl. 307-324.000.

Peterson, Frederick L.; and Paclik, George F., to Garrett Corporation, The. Electronic mass airflow sensing and control system. 3,757,808, Cl. 137-2.000.

Petro-Tex Chemical Corporation: *See*—
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Petrucci, Victor. Victor revolver cylinder adapter. 3,757,448, Cl. 42-59.000.

Petty Machine Company, Inc.: *See*—
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Pews, Richard Garth: *See*—
Bergman, Sylvester; and Pews, Richard Garth, 3,758,335.

Pfaffle, Ernst, to Sickinger, Hans, Company. Lift forming device for book punching machine. 3,757,970, Cl. 214-8.50f.

Pfenning, Ray C.; and Caton, James E. Apparatus for making engineering stakes. 3,757,625, Cl. 83-404.100.

Pfrommer, John W.; and Geisel, Robert C., to Eyelet Speciality Company. Cartridge-type lipstick container or the like. 3,758,218, Cl. 401-86.000.

Pfuller, Peter; and Kuhn, Wenzel, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Preparation of maleimides. 3,758,498, Cl. 260-326.5fm.

Philadelphia Gear Corporation: *See*—
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Philadelphia Handle Company, Inc.: *See*—
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Philippson, Rainer; and Kaspar, Emanuel, to Schering A.G. Process for the preparation of delta-4-3-oxo-1-alpha-methyl steroids. 3,758,523, Cl. 260-397.300.

Phillips, F. C., Inc.: *See*—
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Phillips Petroleum Company: *See*—
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Cichowski, Robert S., 3,758,609.
Clampitt, Richard L.; and Curzon, James E., 3,757,863.
Dean, Jimmie L., 3,758,254.
Fodor, Lawrence M., 3,758,439.
Gilbert, Dixie E., 3,757,978.
Hampton, Joe B., 3,758,400.
Whitesides, John S., 3,758,279.

Phillips, Wendell Gary, to Monsanto Company. Oxamoyl sulfenyl chlorides. 3,758,568, Cl. 260-543.400.

Phinney, Earl M., to Bendix Corporation, The. Remotely controlled blasting machine. 3,757,697, Cl. 102-70.200.

Piccolo, Luigi; and Calcagno, Benedetto, to Societe Italiana Resine S.p.A. Process for preparing aluminum trichloride. 3,758,675, Cl. 423-495.000.

Pichel Industries, Inc.: *See*—
Pichel, Marlowe A., 3,758,769.

Pichel, Marlowe A., to Pichel Industries, Inc. Rotating light projector. 3,758,769, Cl. 240-41.00r.

Pieronek, Julius J. Golf practicing device. 3,758,116, Cl. 273-181.00a.

Pierrot, Victor Charles, III: *See—*
French, John Lischer; Kessler, Kenneth Quentin; Funk, Welker W.; Pierrot, Victor Charles, III; and Hiseler, Stanley Robert, 3,757,837.
Piguet, Paul: *See—*
Quaile, Henry; and Piguet, Paul, 3,758,172.
Pines, Seemon H.: *See—*
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,758,560.
Pinior, Gernot: *See—*
Sick, Erwin; Pinior, Gernot; and Plockl, Johann, 3,758,783.
Pinti, Patrick R.: *See—*
Pinti, Ross A.; and Pinti, Patrick R., 3,757,763.
Pinti, Ross A.; and Pinti, Patrick R. Trigger operated bow string release device. 3,757,763, Cl. 124-35.000.
Pirig, Wolf-Dieter: *See—*
Kandler, Joachim; Merkenich, Karl; Henning, Klaus; and Pirig, Wolf-Dieter, 3,758,671.
Pirk, Hans; Muller, Henricus; and Hackstein, Karl, to Nukem Nuklear-Chemie und Metallurgie, GmbH. Filtrate and waste gas processing. 3,758,280, Cl. 423-15.000.
Pissiotas, Georg: *See—*
Martin, Henry; and Pissiotas, Georg, 3,758,579.
Pit-Bar Manufacturing Company: *See—*
Wakefield, Orval W., 3,757,378.
Pithois, Philippe: *See—*
Retali, Roger; and Pithois, Philippe, 3,758,266.
Plaff Industriemaschinen GmbH: *See—*
Gustmann, Kurt; and Wenz, Herbert, 3,757,714.
Plank, Charles J.: *See—*
Rosinski, Edward J.; Plank, Charles J.; and Schwartz, Albert B., 3,758,403.
Plankinton, Robert. Apparatus for detecting the ability of paper to withstand printing processes and the like. 3,757,574, Cl. 73-150.00a.
Plas/Steel Products, Inc.: *See—*
Cousin, Barry D., 3,757,762.
Plastino, Dominic. Vehicle track element. 3,758,171, Cl. 305-40.000.
Platzoder, Karl, to Siemens Aktiengesellschaft. Thyristor with short circuiting ring. 3,758,832, Cl. 317-235.00r.
Plockl, Johann: *See—*
Sick, Erwin; Pinior, Gernot; and Plockl, Johann, 3,758,783.
Pluijgers, Christoffel Willem: *See—*
Daams, Jasper; Kuipers, Johannes; and Pluijgers, Christoffel Willem, 3,758,468.
Poferl, Gunter: *See—*
Smejkal, Hellmuth; and Poferl, Gunter, 3,757,579.
Poggiali, Lewis D.: *See—*
Coons, Everett A.; Poggiali, Lewis D.; and Jacalone, Richard P., 3,757,935.
Poignant, Jean-Claude: *See—*
Malen, Charles; Danree, Bernard; and Poignant, Jean-Claude, 3,758,528.
Poisson, Jacques Emile. Process of obtaining tabersonine. 3,758,478, Cl. 260-287.00r.
Polaroid Corporation: *See—*
Burgarella, John P., 3,757,643.
Elonanta, Vaito K.; and Ruggles, Benjamin C., 3,757,657.
Poletto, John Frank: *See—*
Weiss, Martin Joseph; Gibs, Gabriel Joseph; Poletto, John Frank; and Remers, William Alan, 3,758,501.
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Kasztreiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, 3,758,546.
Polizzotto, Joseph F.: *See—*
Wolf, Edgar; Lau, Edward; and Polizzotto, Joseph F., 3,757,920.
Pollak, Henry M.; and Pollak, Robert S. Device for varying the volute and throat of a centrifugal pump. 3,758,227, Cl. 415-121.000.
Pollak, Robert S.: *See—*
Pollak, Henry M.; and Pollak, Robert S., 3,758,227.
Polts, Byrel D., to United States of America, Navy. Stable free-radical structures prepared from serum albumin and nitrosyl disulfonate. 3,758,453, Cl. 260-121.000.
Polyvend, Inc.: *See—*
Bruckner, James V.; Patrick, William A.; and Yingst, Thomas O., 3,757,993.
Pomara, Johnny B., Jr., 50% to El Chico Corporation. Food processing apparatus. 3,757,676, Cl. 99-450.600.
Pompeev, Vladimir Mikhailovich: *See—*
Pechuk, Vasily Ivanovich; Pompeev, Vladimir Mikhailovich; and Taratukhina, Galina Petrovna, 3,757,573.
Popoff, Ivan Christoff; and Thanawalla, Chandrakant Bhagwandas, to Pennwalt Corporation. Fluorosulfonated thiopenols and method of preparation. 3,758,567, Cl. 260-543.00f.
Popper, Felix B.; and Levesque, Albert H., to Grace, W. R., & Co. Production of metal chelates. 3,758,534, Cl. 260-429.500.
Porsche, Dr.-Ing. H.c.F., K.G., Firma: *See—*
Eyb, Wolfgang, 3,758,772.
Porter, Sidney Clark, Jr.: *See—*
Williamson, Ronald Eugene; Porter, Sidney Clark, Jr.; and Shotting, Kenneth Frederic, 3,757,484.
Portescap: *See—*
Quaile, Henry; and Piguet, Paul, 3,758,172.
Portmann, August Thomas, to Bruderer AG. Apparatus for oscillating drive of shafts and use of the aforesaid apparatus. 3,758,011, Cl. 226-142.000.
Post, Daniel H. Rotary engine. 3,758,228, Cl. 415-153.000.
Postma, Cambertus: *See—*
Janssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendrik; Postma, Cambertus; and Guerts, Angustinus Joseph, 3,758,304.
Potgieter, Jacobus Daniel. Bicycle type exercising apparatus with eccentric mounting. 3,758,107, Cl. 272-73.000.
Potter, Huntington. Luggage handles. 3,757,911, Cl. 190-57.000.
Potter, James L. Rotor system having viscoelastic lead-lag damper. 3,758,230, Cl. 416-107.000.
Potter, Ralph A.; and Tennery, Victor J., to United States of America, Atomic Energy Commission. Process for the preparation of uranium nitride powder. 3,758,669, Cl. 423-254.000.
Pounder, Maurice George; and Wilkins, Kenneth Ross, to Du Pont of Canada Limited. Purification of adiponitrile. 3,758,545, Cl. 260-465.80r.
Powers, William, III: *See—*
Rigdon, Orville W.; Macaluso, Anthony, Sr.; and Powers, William, III, 3,758,608.
Poyner, Weston R.; Stallbaumer, Richard J.; and Eskridge, Wade A., to Chance, A. B., Company. Multiple speed hydraulic gear motor driven gear unit. 3,757,524, Cl. 60-483.000.
PPG Industries, Inc.: *See—*
Doerge, Herman P.; and Wismer, Marco, 3,758,638.
Pravaz, Marcel H., to Etudes et Fabrications Aeronautiques. Harness for parachutes and the like. 3,757,744, Cl. 119-96.000.
Precision Industries, Inc., mesne: *See—*
Stanton, Stephen, 3,758,015.
Prete, Ernest, Jr., to Ancra Corporation. Door latching mechanism. 3,758,140, Cl. 292-223.000.
Preuss, Friedrich: *See—*
Koch, Werner; and Preuss, Friedrich, 3,757,689.
Price Company, Limited, The: *See—*
Hawkings, William E., 3,758,380.
Price, Frederick. Downhole safety valve. 3,757,816, Cl. 137-498.000.
Price, Philip N.; and Hoffman, Herbert N., to General Electric Company. Turbine valve chest and nozzle plate construction. 3,758,229, Cl. 415-217.000 57 11/19/71.
Prindle, Herghel B.; McElreath, Jack A.; and Elliot, David R., to Dow Chemical Company, The. Process for preparing a stabilized biocidal composition. 3,758,464, Cl. 260-248.500.
Pritchett, William C., to Atlantic Richfield Company. Well heating. 3,757,860, Cl. 166-248.000.
Procter & Gamble Company, The: *See—*
Connor, Daniel S.; and Krummel, Harry Karl, 3,758,420.
Wosaba, Charles L., II, 3,757,785.
Prodger, Brian S.: *See—*
Buck, Gordon H.; Bales, Joseph H.; and Prodger, Brian S., 3,757,459.
Protectoseal Company, The: *See—*
Zehr, William J., 3,758,070.
Prudhon, Francois, to Rhone-Progil. Quench chamber for hot gases. 3,758,081, Cl. 261-18.00b.
Pryor, Eugene F. Lightweight hyperbolic paraboloid roof structure. 3,757,478, Cl. 52-80.000.
Przybylowicz, Edwin Paul: *See—*
Grum, Frank; Przybylowicz, Edwin Paul; Costa, Lorenzo Federico; and Miller, Raymond Sumner, 3,758,412.
Ptashnik, William J., to General Motors Corporation. Method for producing metal alloy foams. 3,758,291, Cl. 75-20.00f.
Pugh, Hubert M., to Thermo-Products, Inc. Humidifier with flushing system. 3,758,086, Cl. 261-92.000.
Pugin, Andre; and von der Crone, Jost, to Ciba-Geigy AG. Process for the production of deeply coloured transparent pigments of the isoindoline series. 3,758,497, Cl. 260-325.000.
Puhahn, Werner; and Lampert, Rolf, to Standardwerk Eugen Reis GmbH. Coin counting apparatus. 3,757,805, Cl. 133-8.00r.
Quaglia, Lawrence T.: *See—*
Anstin, Wayne D.; Byrne, Joseph E.; Clifford, Gilbert F.; Henkel, Robert W.; Odell, Arthur W.; Quaglia, Lawrence T.; and Smith, Donald F., 3,757,941.
Quaile, Henry; and Piguet, Paul, to Portescap. Elastic pivot bearings. 3,758,172, Cl. 308-2.000.
Quame, Babington A. Apparatus for providing test specimens in the form of spots. 3,758,275, Cl. 23-259.000.
R. I. Patents, Inc.: *See—*
Margrave, John L.; and Lagow, Richard J., 3,758,450.
Racicot, Ernest G.: *See—*
Lipchik, Harold; and Racicot, Ernest G., 3,758,203.
Rack Engineering Company: *See—*
Colbridge, Thomas D., 3,757,967.
Radex Corporation: *See—*
Stiebel, Ariel, 3,757,418.
Radford, Robert E.; and Stapleford, Gary N., to Sanders Associates, Inc. Light pen apparatus. 3,758,782, Cl. 250-217.0cr.
Radke, Arthur O.; and Galbraith, Donald C., to Universal Oil Products Company. Seat belt anchor mechanism for adjustable seat. 3,758,158, Cl. 297-385.000.
Radke, Donald G.: *See—*
Stephenson, Robert L.; and Radke, Donald G., 3,758,131.
Rafferty, John W.: *See—*
Wright, Thomas P.; and Rafferty, John W., 3,758,315.

Ramachandran, Pallassana; and Yurko, Joseph, to Colgate-Palmolive Company. Non-yellowing detergent formulation. 3,758,408, Cl. 252-89.000.

Rammler, David H.: *See—*
Bax, Pieter C.; Henderson, Margaret S.; and Rammler, David H., 3,758,456.

Rank Organisation Limited, The: *See—*
Wright, Keith Lawrence, 3,758,838.

Ranseen, Mauritz C. Card supporting device. 3,758,065, Cl. 248-459.000.

Raocio, Joseph A. Tool-holder for machine tools. 3,757,616, Cl. 82-36.00r.

Raodman, Charles J., Jr., to Skyway Machine, Inc. Exhaust unit for combusion engine. 3,757,892, Cl. 181-36.000.

Rapfogel, Irving. Method of treating periodontal disease. 3,758,689, Cl. 424-329.000.

Rasmussen, Hans P.: *See—*
United States of America, National Aeronautics and Space Administration, 3,758,718.

Rathmans of Pall Mall Canada Limited: *See—*
Blackburn, Camille R.; and Schmelzer, Jurgen F., 3,757,564.

Rauth, Glen E. Harvesting apparatus. 3,757,504, Cl. 56-328.00r.

Ray, Frank M., to Slick Corporation, The. Control valve for pulse jet type filter apparatus. 3,757,497, Cl. 55-302.000.

Rayburn, Charles Calvin, to Illinois Tool Works Inc. Wound film capacitor. 3,758,833, Cl. 317-258.000.

Raynaud, Guy M.: *See—*
Fauran, Claude P.; Eberle, Jeannine A.; Raynaud, Guy M.; and Bailly, Yves G., 3,758,459.

Raytheon Company: *See—*
Wong, Jeffrey, 3,758,811.

Razin, Anatoly Alexandrovich: *See—*
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich; Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.

RCA Corporation: *See—*
Chamberas, George Athanasios, 3,757,571.
Cowley, Richard Thomas; and Hulls, Leonard Robin, 3,757,570.
Frattarola, Joseph Ralph, 3,758,649.
Heuner, Robert Charles; and Steudal, Goetz Wolfgang, 3,758,792.
Kosonocky, Walter Frank, 3,758,794.
Tang, Pak-Chong, 3,758,814.

Re, Frank Manuel, to Dual Manufacturing and Engineering, Incorporated. Reclining chair. 3,758,151, Cl. 297-83.000.

Redactron Corporation: *See—*
Wolf, Edgar; Lau, Edward; and Polizzotto, Joseph F., 3,757,920.

Reddan, Edwin D.: *See—*
Baker, Terry M.; Huthsing, Henry W.; Kieding, Robert B.; and Reddan, Edwin D., 3,757,931.

Redenbarger, Philip D.; and Khilnani, Ashok, to Case, J. I., Company. Fluid filter with clogging relief means. 3,757,951, Cl. 210-131.000.

Redpath Dorman Long Limited: *See—*
Young, William Charles Trevor, 3,757,480.

Reed, Hugh Wilma Boulton; Smith, John; and Hirst, Ian, to Imperial Chemical Industries Limited. Process for the production of phenolic compounds and intermediates for use therein. 3,758,596, Cl. 260-613.00d.

Reeder, Terrence L.: *See—*
Albrecht, Richard E.; and Reeder, Terrence L., 3,757,653.

Reflex Corporation of Canada Limited: *See—*
Hedgewick, Peter, 3,758,191.

Regie Nationale des Usines Renault: *See—*
Boue, Guy; and Vidberg, Marcel, 3,757,796.

Reichhold-Albert-Chemie Aktiengesellschaft: *See—*
Katsibas, Themistoklis, 3,758,427.

Reichle, Rulf, to Bosch, Robert, G.m.b.H. Information carrier construction. 3,758,336, Cl. 117-217.000.

Reichrath, Werner: *See—*
Suverkropp, Geerthrudes H.; and Reichrath, Werner, 3,758,494.

Reid, Thomas. System for removing snow and ice from paved surfaces. 3,758,748, Cl. 219-213.000.

Reimlinger, Hans K.; and Vandewalle, Jan Joseph Maurice, to Mallingkrodt Chemicals Works, mesne. s-Triazolo [5,1α] isoquinolines and derivatives. 3,758,480, Cl. 260-288.00r.

Reinberg, Alan R., to Texas Instruments, Incorporated. Radial flow reactor. 3,757,733, Cl. 118-49.500.

Reinhall, Rolf Bertil. Revolver feeder for cellulosic materials. 3,758,379, Cl. 162-246.000.

Reist, Walter, to Ferag AG. Universal link chain. 3,757,514, Cl. 59-78.000.

Reitsema, Robert H.; and Allphin, Nylen L., Jr., to Marathon Oil Company. Liquid esters of naphthalene dicarboxylic acids. 3,758,548, Cl. 260-475.0fr.

Relaxaway, Inc.: *See—*
Emold, Harry G., 3,758,149.

Reliable Electric Company: *See—*
Golden, James E.; and Taylor, James F., 3,758,703.

Remers, William Alan: *See—*
Weiss, Martin Joseph; Gibs, Gabriel Joseph; Poletto, John Frank; and Remers, William Alan, 3,758,501.

Remy, E. P., et Cie: *See—*
Berry, Jean-Luc, 3,757,622.

Renfroe, Hiram H. Frying and/or frictionless probing device. 3,757,788, Cl. 128-348.000.

Renner, Theodor: *See—*
Ealkenberg, Dieter; Renner, Theodor; Rittmayer, Gerhard; and Winkler, Josef, 3,758,346.

Rennwald, Fredrick H.: *See—*
Drum, Harvey R.; Witherill, Jeffry L.; and Rennwald, Fredrick H., 3,757,737.

Renshaw, Gilber' Lendrum, to Davy and United Engineering Company Limited. Stacking of articles. 3,757,965, Cl. 214-6.00h.

Research Corporation: *See—*
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Saini, Rakesh, 3,758,396.

Resilient Grip Limited: *See—*
Varga, Otto Herman; and Huston, Ralph (said Varga, assor. to), 3,758,032.

Resuggan, Harold Frederick, to Webley & Scott Limited. Hydraulic jacks. 3,757,523, Cl. 60-477.000.

Resyn Corporation: *See—*
Nikles, Otho Leroy, Jr., 3,758,421.

Retali, Roger; and Pithois, Philippe. Calcining process and installation. 3,758,266, Cl. 432-14.000.

Reyner, Emerson Marshall, II: *See—*
Fritz, William Baird; Sanders, Neil Harrison; Reyner, Emerson Marshall, II; and Fox Harry Alvin, Jr., 3,757,415.

Reynier, Rene: *See—*
Lagier, Michel; and Reynier, Rene, 3,757,888.

Reynolds, Blake: *See—*
Marion, Charles P.; and Reynolds, Blake, 3,758,037.

Reynolds Metals Company: *See—*
Kibby, Robert M., 3,758,290.

RFD-GQ Limited: *See—*
Mitchell, John Rothwell, 3,758,056.

Rhee, Sang Soon: *See—*
Menzin, Marvin; Blanz, John H.; Harvey, Andrew C.; and Rhee, Sang Soon, 3,758,657.

Rhoda, Ralph A., to Berkeley Pump Company. Guide vane for suction side of marine jet propulsion system. 3,757,728, Cl. 115-16.000.

Rhone-Progil: *See—*
Prudhon, Francois, 3,758,081.

Rhymes, Aubrey J., Jr.: *See—*
Jones, Irby C., Jr.; and Rhymes, Aubrey J., Jr., 3,758,572.

Rich, Ernest Joseph, to Celanese Corporation. Spray-spun continuous tubular structure. 3,758,373, Cl. 161-169.000.

Richeson, Dale T. Conversion system for providing useful energy from water surface motion. 3,758,788, Cl. 290-42.000.

Richez, Jacques: *See—*
Fally, Jacques; Richez, Jacques; Lasnf, Claude; and Lazennec, Yvon, 3,758,337.

Richman, Edward B., to Addressograph-Multigraph Corporation. Process for making a printing master. 3,758,330, Cl. 117-37.01e.

Rickenbacher, Hans Rudolf, to Ciba-Geigy AG. Chlorinated alpha-aminoanthraquinones and process for their manufacture. 3,758,518, Cl. 260-381.000.

Ricoh Co., Ltd.: *See—*
Kato, Saburo, 3,758,120.
Mochizuki, Nobuo, 3,758,204.

Ridgway, Harold C., to Telaco Industries. Hydraulically actuated rotary pop-up sprinkler. 3,758,038, Cl. 239-206.000.

Rigdon, Orville W.; Macaluso, Anthony, Sr.; and Powers, William, III, to Texaco Inc. Process for acid treating of olefins. 3,758,608, Cl. 260-677.000.

Riggert, Karlheinz, to Vickers-Zimmer Aktiengesellschaft Planung und bau von Industrieanlagen. Process for the production of technical endless filaments of high-molecular weight linear polymers. 3,758,658, Cl. 264-176.00f.

Rigollot, Georges Alfred. Power-generating plant using a combined gas- and steam-turbine cycle. 3,757,517, Cl. 60-39.18b.

Riker Laboratories, Inc., mesne: *See—*
Robertson, Jerry E.; Harrington, Joseph K.; and Kvam, Donald C., 3,758,688.

Rimar Manufacturing, Inc.: *See—*
Herr, Robert L., 3,758,014.

Rinke, Odenthal-Globusch Heinrich: *See—*
Winkelmann, Hans Dieter; Rosendahl, Friedrich Karl; Oertel, Harald; and Rinke, Odenthal-Globusch Heinrich, 3,758,553.

Rinnergschwentner, Hans: *See—*
Steiner, Adolf; and Rinnergschwentner, Hans, 3,757,885.

Rippel, Robert; Ruschig, Heinrich; Lindner, Ernst; and Orr, Manfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. 2-(Thienyl-3'-amino)-1,3-diaza-cycloalkenes. 3,758,476, Cl. 260-256.50r.

Ritchie, David Alan; and Kuciejcik, James S., to Sherwood Medical Industries, Inc. Reagent reservoir and magnetic stirring system. 3,758,274, Cl. 23-259.000.

Ritchie, Lyle J., to Automatic Refuse Systems, Inc. Dolly-mounted bag holder for refuse compactor. 3,757,682, Cl. 100-220.000.

Ritter, Klaus; Gott, Hans; and Zechner, Gottfried, to EVG Entwicklungs- und Verwertungsgesellschaft m.b.H. Machine for straightening and cutting metal wire or strip into pieces. 3,757,552, Cl. 72-12.000.

Rittiger, Robert S.; and Russell, Charles K., to United States Steel Corporation. Apparatus for oxygen determination. 3,758,397, Cl. 204-195.00s.

Rittmayer, Gerhard: *See—*
Ealkenberg, Dieter; Renner, Theodor; Rittmayer, Gerhard; and Winkler, Josef, 3,758,346.

Robert, Alain: *See—*
Sindzingre, Michel Jacques Marie; Villamayor, Michel; and Robert, Alain, 3,758,369.

Roberts, Bernard J.: *See—*
Patel, Narendra; and Roberts, Bernard J., 3,758,653.

Roberts, Bissett J. Support and guide mechanism for pivoting a platform. 3,757,703, Cl. 108-6.000.

Roberts, Edward S., to Treadwell Corporation. Method and apparatus for extruding metal powder to produce a continuous rod. 3,757,410, Cl. 29-420.500.

Roberts, Frank A., mesne: *See—*
McCue, David D., 3,758,858.

Roberts, Geoffrey A. H.: *See—*
Owen, Keith; and Roberts, Geoffrey A. H., 3,758,282.

Roberts, George Leathwhite, Jr.; and Rowland, John David, to American Cyanamid Company. Rutile T 102 slurries. 3,758,322, Cl. 106-300.000.

Roberts, Theodore S.: *See—*
Brayshaw, Forrest G.; and Roberts, Theodore S., 3,757,770.

Robertson, Jerry E.: *See—*
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,758,490.

Robertson, Jerry E.; Harrington, Joseph K.; and Kvam, Donald C., to Riker Laboratories, Inc., mesne. Substituted sulfonanilides in the treatment of inflammation. 3,758,688, Cl. 424-321.000.

Robertson, Robert S.: *See—*
Davis, Haggai; and Robertson, Robert S., 3,757,858.

Robic, Gabriel: *See—*
Pariel, Jean Marie; and Robic, Gabriel, 3,757,706.

Robin, Michael; and Schulte, Sheldon R., to Ashland Oil, Inc. Process of reacting a benzoic acid with amino alcohol. 3,758,547, Cl. 260-472.000.

Robinson, John Joseph; and Hibbert, Frederick. Apparatus for forming and displaying words or numerals or a series of numerals and symbols. 3,757,433, Cl. 35-75.000.

Robinson, William P.: *See—*
Trbovich, Nicholas D.; Meyer, William H.; Bean, Edwin T., Jr.; and Robinson, William P., 3,758,113.

Robnolie, Wilber B. Entry device for reproduction machine. 3,758,208, Cl. 355-97.000.

Roch, Gerald V., to Hurco Manufacturing Company, Inc. Automatic shearing method and apparatus. 3,757,645, Cl. 91-411.00r.

Rockwell Manufacturing Company: *See—*
Herd, David P., 3,758,072.

Rodenberg, Orville C.: *See—*
York, William C.; and Rodenberg, Orville C., 3,758,327.

Rodriguez, David G.: *See—*
Cox, Thomas L.; and Rodriguez, David G., 3,757,966.

Rogakos, Deno J., to General Motors Corporation. System including bi-directional drive mechanism with reverse drive limit. 3,757,472, Cl. 49-40.000.

Rogers, Edward F.; and Clark, Robert L., to Merck & Co., Inc. 2-Loweralkylamino-4-amino benzoic acids ether salts and esters, and acid addition salt thereof. 3,758,561, Cl. 260-418.00r.

Rogers, Frank J.; and MacClose, Joe, to Rogers Sales & Service Inc. Plastic tee manufacturing apparatus. 3,758,255, Cl. 425-392.000.

Rogers, Glyn D.: *See—*
Hemmingsen, John O.; Rogers, Glyn D.; and Mullen, Albert C., 3,757,678.

Rogers Sales & Service Inc.: *See—*
Rogers, Frank J.; and MacClose, Joe, 3,758,255.

Rogoff, Martin H.: *See—*
Shieh, Tsuong R.; and Rogoff, Martin H., 3,758,383.

Rohner, Rudolf, to Sulzer Brothers Ltd. Safety circuit for a working cylinder. 3,757,646, Cl. 91-438.000.

Rohr, Charlotte M. Electric mattress. 3,758,747, Cl. 219-212.000.

Rolair Systems, Inc.: *See—*
Baker, Terry M.; Huthsing, Henry W.; Kieding, Robert B.; and Reddan, Edwin D., 3,757,931.

Roland Offsetmaschinenfabrik Faber & Schleicher A.G.: *See—*
Koch, Werner; and Preuss, Friedrich, 3,757,689.

Rolff, Jacob J. P.; and Di Marco, Franco, to Eckardt, J. C., AG. Apparatus for measuring the quantity of outflow in open canals or the like. 3,757,576, Cl. 73-194.0em.

Rooney, Clarence Stanley; and Gleason, Clarence Henry, to Merck, Sharp, & Dohone (I.A.) Corporation. N-sulfonyl-indole-3-acetomides. 3,758,500, Cl. 260-326.12r.

Roos, Leo, to Du Pont de Nemours, E. I., and Company. Photopolymerizable compositions and elements containing organosilanes. 3,758,306, Cl. 96-83.000.

Ropp, Richard C., to Westinghouse Electric Corporation. Rare-earth-niobate composition. 3,758,486, Cl. 252-301.40r.

Rorer, William H., Inc.: *See—*
Diamond, Julius, 3,758,469.

Rose, Robert Frederick, to Dixon Automatic Tool, Inc. Standardized control sections for machine control systems. 3,758,835, Cl. 318-162.000.

Roseman, Richard J. Tube connection for fluid handling apparatus. 3,758,138, Cl. 285-158.000.

Rosen, Joseph L., to Super Whip Valve Mfg. Co. Valve structure. 3,758,007, Cl. 222-394.000.

Rosenberger, Michael; and Saucy, Gabriel, to Hoffmann-La Roche Inc. Aryl ketals of polycyclic oxo compounds and processes. 3,758,509, Cl. 260-340.500.

Rosendahl, Friedrich Karl: *See—*
Winkelmann, Hans Dieter; Rosendahl, Friedrich Karl; Oertel, Harald; and Rinke, Odenthal-Globusch Heinrich, 3,758,553.

Rosinski, Edward J.; Plank, Charles J.; and Schwartz, Albert B., to Mobil Oil Company. Catalytic cracking of hydrocarbons with mixture of ZSM-5 and other zeolites. 3,758,403, Cl. 208-120.000.

Ross, Abe D. Commercial laundering apparatus. 3,757,546, Cl. 68-44.000.

Ross, Charles W.: *See—*
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Ross, Donald R. Rigid panel container. 3,758,017, Cl. 229-14.00c.

Ross Operating Valve Company: *See—*
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Ross, Steven G.: *See—*
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Rothi, Robert D.: *See—*
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Rothmans of Pall Mall Canada Limited: *See—*
Di Ianni, Daniel; and Brackmann, Warren A., 3,757,799.

Rothschild, Leigh M.: *See—*
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Routson, Willis G., to Dow Chemical Company, The. Oil recovery employing peroxides and alkalis. 3,757,861, Cl. 166-273.000.

Rovinski, Walter M., to Century Laboratories Inc. Filter syringe. 3,757,779, Cl. 128-218.00m.

Rowe, Robert W. Muzzle loading firearm. 3,757,447, Cl. 42-51.000.

Rowland, John David: *See—*
Roberts, George Leathwhite, Jr.; and Rowland, John David, 3,758,322.

Royal Industries, Inc.: *See—*
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Rucker, Dietrich: *See—*
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Rudolph, Hans: *See—*
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Rudszinat, Willy: *See—*
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Kruse, Friedel; Wahle, Gunter; Rudszinat, Willy; and Erdmann, Otto, 3,757,624.

Ruegg, Frank A.; Spracklen, Stanford B.; and Cheatham, Burton L., II, to International Biophysics Corporation. Sterile inserter apparatus. 3,757,771, Cl. 128-2.10e.

Ruggles, Benjamin C.: *See—*
Elonanta, Vaito K.; and Ruggles, Benjamin C., 3,757,657.

Ruhle, Helmut W.: *See—*
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Rummler, William David, to Bell Telephone Laboratories, Incorporated. Transversal equalizer controlled by pilot tones. 3,758,881, Cl. 333-16.000.

Runciman, Donald A. Method and apparatus for drying lumber. 3,757,428, Cl. 34-9.500.

Rundgren, Alfred C.: *See—*
Rundgren, Alfred E.; and Rundgren, Alfred C., 3,757,980.

Rundgren, Alfred E.; and Rundgren, Alfred C. Non-refillable bottle. 3,757,980, Cl. 215-23.000.

Rupert, Ronald E. Cartridge locator. 3,757,561, Cl. 72-461.000.

Rusch, Allan C.; and Bubak, John, to Massey-Ferguson Inc. Hydrostatic transmission. 3,757,525, Cl. 60-492.000.

Rusch, Robert E., to Lawrence Brothers Inc. Hanger device. 3,757,384, Cl. 16-97.000.

Ruschig, Heinrich: *See—*
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Russell, Charles K.: *See—*
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Ruszkay, Richard J.: *See—*
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Sacher, William S. Cushion for preventing and alleviating bedsores. 3,757,366, Cl. 5-347.000.

Saiak-Gebain: *See—*
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Saini, Rakesh: *See—*
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Saito, Junichi: *See—*
Aya, Masahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Morishima, Norihisa, 3,758,481.

Saito, Tatsuo: *See—*
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Saito, Yutaka, to Nippon Kogaku K.K. Filter holder. 3,758,200, Cl. 350-318.000.

Saitoh, Hirukazu: *See—*
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Sakumoto, Hideki: *See—*
Sugaya, Hiroshi; and Sakumoto, Hideki, 3,758,048.

Sakurai, Masao; and Muto, Kikuo, to Gunze Kobunski Kogyo Kabushiki Kaisha. Manufacture of multi-ply board of thermoplastic material. 3,758,354, Cl. 156-79.000.

Sakurai, Masao; Muto, Kikuo; and Sugimoto, Noritsugu, to Gunze Kobunshi Kogyo Kabushiki Kaisha. Method for manufacturing a multi-ply board of thermoplastic material and product resulting therefrom. 3,758,370, Cl. 161-69.000.

Salminen, Ilmari F.: *See—*
Beavers, Leo E.; Lau, Philip T. S.; and Salminen, Ilmari F., 3,758,308.

Salzman, Paul K.; and Studer, Paul R., Jr., to United States of America, Navy. Visual marker system. 3,757,633, Cl. 89-1.50r.

Sam Stein Associates, Inc.: *See—*
Szabrak, Robert H.; and Stubblebine, Warren, 3,757,672.

Sames, Delbert W., to GAF Corporation. Pre-set copy counting device. 3,758,755, Cl. 235-92.0pe.

San/Bar Electronics Corporation: *See—*
Everhart, Charles T., 3,758,729.

Sanders Associates, Inc.: *See—*
Radford, Robert E.; and Stapleford, Gary N., 3,758,782.
Schmitt, Joseph W.; Mosakowski, James E.; and Starkey, Donald L., 3,758,870.

Sanders, Grady H., to Deering Milliken Research Corporation. Drafting system. 3,757,381, Cl. 15-256.510.

Sanders, Neil Harrison: *See—*
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Sandlin, Billy J.: *See—*
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Sandlin, Delbert Elden. Mounting device for tire chains. 3,757,842, Cl. 152-216.000.

Sandoz Ltd., (a/k/a) Sandoz AG: *See—*
Leber, Jean-Pierre; and Lutz, Karl, 3,758,645.

Sandoz-Wander, Inc.: *See—*
Hardtmann, Goetz E.; and Ott, Hans, 3,758,475.
Schmutz, Jean; and Hunbiker, Fritz, 3,758,479.

Santimauro, John F.; and Gerson, Herman, to Allied Chemical Corporation. Conditioning of phthalocyanine compounds. 3,758,321, Cl. 106-288.00q.

Sargent Industries of Michigan, Inc.: *See—*
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Beisch, Hans R.; and Trute, William C., 3,757,401.

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Sauter, Richard J.: *See—*
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Savage, Donald Stanley; and Brosser, Paul Edward, to Aerpat A.G. Cutter. 3,757,417, Cl. 30-179.000.

Savatgy, Evan: *See—*
Cox, Richard M.; and Savatgy, Evan, 3,758,883.

Savelli, Joseph A. Trailer sway control apparatus. 3,758,165, Cl. 303-20.000.

Savin Business Machines Corporation: *See—*
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Sawaki, Koji, to Yamaha Hatsudoki Kabushiki Kaisha. Seat for high-speed water craft. 3,758,064, Cl. 248-403.000.

Scapa Dryers (Canada) Ltd.: *See—*
Haythornthwaite, James; and Fardeau, Joseph A., 3,757,402.

Schaefer, Harold W.: *See—*
Brooks, Joseph F.; and Schaefer, Harold W., 3,757,382.

Schaefer, Robert H., to General Motors Corporation. Transmission and controls. 3,757,612, Cl. 74-865.000.

Schaeffer, Klaus-Peter: *See—*
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Schafer, Richard A., to Pak-Well Corporation. Continuous web and affixed envelopes with selective spacing. 3,758,025, Cl. 229-69.000.

Schaffner, Kurt: *See—*
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Scheel, Hans P., to Western Minerals, Inc. Process of treating organic waste. 3,758,287, Cl. 71-12.000.

Schellhammer, Carl-Wolfgang: *See—*
Schroeder, Josef; and Schellhammer, Carl-Wolfgang, 3,758,460.

Schering A.G.: *See—*
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Scheutz, Hans-Ulrich: *See—*
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Schick Incorporated: *See—*
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Schiffner, Gerhard: *See—*
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Schilling, Walter W., to MacMillan Bloedel Limited. Sheet feeding apparatus. 3,758,365, Cl. 156-538.000.

Schindler, Willard R. Device for loading shells. 3,757,449, Cl. 42-87.000.

Schlegel, William, to Pen-Cell Plastics, Inc. Purple martin birdhouse. 3,757,742, Cl. 119-23.000.

Schloemann Aktiengesellschaft: *See—*
Scholz, Heinrich; Bollig, Georg; Grothe, Horst; and Otto, Gerhard, 3,757,848.

Schmelzer, Jurgen F.: *See—*
Blackburn, Camille R.; and Schmelzer, Jurgen F., 3,757,564.

Schmerling, Louis, to Universal Oil Products Company. Halogen substituted polycyclic hydrocarbons. 3,758,617, Cl. 260-648.00c.

Schmid, Anthony P., to Owens-Illinois, Inc. Coaxially conducting element and process for manufacture. 3,758,705, Cl. 174-113.00r.

Schmidt, Emerson E.: *See—*
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Schmidt, Fritz, to Siemens Aktiengesellschaft. Spacer means for a superconductive electrical cable. 3,758,701, Cl. 174-28.000.

Schmidt, Karl, GmbH: *See—*
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Schmidt, Kenneth C., to Granted to the United States National Aeronautics and Space Administration under the Provision of 42 USC. 2457. Radiation and particle detector and amplifier. 3,758,781, Cl. 250-207.000.

Schmitt, Joseph W.; Mosakowski, James E.; and Starkey, Donald L., to Sanders Associates, Inc. Digital demodulator. 3,758,870, Cl. 329-104.000.

Schmutz, Jean; and Hunbiker, Fritz, to Sandoz-Wander, Inc. Nitro and sulphomoyl substituted dibenzodiazepines. 3,758,479, Cl. 260-268.0tr.

Schneider, Robert J. Resilient plastic staple. 3,757,629, Cl. 85-49.000.

Schneider, Werner: *See—*
Frohne, Johann-Christian; Hohmann, Ernst; and Schneider, Werner, 3,758,776.

Schneider, William P., to Upjohn Company, The. Process of making silyl esters of proslaglaudin E_2. 3,758,542, Cl. 260-448.80r.

Schoeller Technical Papers, Inc.: *See—*
Beckner, Carol R.; and Kasper, Klaus B., 3,758,376.

Schoen, Alan H., to United States of America, National Aeronautics and Space Administration. Expandable space-frames. 3,757,476, Cl. 52-646.000.

Scholven-Chemie Ag. Gesenkirchen-Buer: *See—*
Frohne, Johann-Christian; Hohmann, Ernst; and Schneider, Werner, 3,758,776.

Scholz, Heinrich; Bollig, Georg; Grothe, Horst; and Otto, Gerhard, to Schloemann Aktiengesellschaft. Method and apparatus to relieve the strain on roller apron segments during continuous casting. 3,757,848, Cl. 164-282.000.

Schroder, Johann; Ganser, Hans Gunther; and Oepen, Heinrich, to U.S. Philips Corporation. Piezoelectric ignition device. 3,758,827, Cl. 317-81.000.

Schroeder, Josef; and Schellhammer, Carl-Wolfgang, to Bayer Aktiengesellschaft. Styryl compounds. 3,758,460, Cl. 260-240.00d.

Schroeder, Kenneth Roger, to Deere & Company. Service brake lock mechanism. 3,757,604, Cl. 74-529.000.

Schuermann, Kenneth W., to Charles Machine Works, Inc., The. Swing mechanism for pivoted member. 3,757,642, Cl. 91-176.000.

Schuff, Richard William. Tub forming machine. 3,758,250, Cl. 425-165.000.

Schuft, Lester E.: *See—*
Tregillis, John S.; and Schuft, Lester E., 3,758,096.

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Schulte, Sheldon R.: *See—*
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Schulz, Raymond A., to United States of America, Navy. Analog voltage selector circuit with selected voltage detection. 3,758,867, Cl. 328-137.000.

Schumacher, Walter C., to General Electric Company. Toggle mechanism for mercury switch. 3,758,735, Cl. 200-222.000.

Schumann, Helmut: *See—*
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Schuplin, Jerome T., to Footway Fasteners, Inc. Cable clamp or fastener. 3,758,060, Cl. 248-74.0pb.

Schurig, Robert E.; and Korn, Joseph, to Sonic Development Corporation. Pressure wave atomizing method. 3,758,033, Cl. 239-4.000.

Schwartz, Albert B.: *See—*
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Rosinski, Edward J.; Plank, Charles J.; and Schwartz, Albert B., 3,758,403.

Schwartz, Boris. Biased tensioned insole member for boots or shoes. 3,757,435, Cl. 36-30.00r.

Schwartz, John L.: *See—*
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Schwarzkipf, August, to Windmoller & Holscher. Carrier bag handles of theromplastic material preferably made by an injection moulding process. 3,757,385, Cl. 16-110.000.

Schwarzkopl, Hans, GmbH: *See—*
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Scientific Instruments, Inc.: *See—*

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Scott & Williams, Inc.: *See*—
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Scott, Donald E.: *See*—
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Scott, Robert D., to Hepa Corporation. Stiffened absolute filter pack. 3,757,499, Cl. 55-500.000.
Scott, Robert D. Dehydration and packaging of foodstuffs by dialysis. 3,758,313, Cl. 99-199.000.
Scott, William B., to Whitney, W. A., Corporation. Clamp with workpiece locator. 3,758,099, Cl. 269-58.000.
Scovill Manufacturing Company: *See*—
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Seemann, Fritz; and Troxler, Franz. Organic compounds. 3,758,502, Cl. 260-326.150.
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Seidler, Werner M. K., to Lilly, Eli, and Company. Propoxyphene napsylate timed-release particles. 3,758,679, Cl. 424-19.000.
Seifert, Horst, to U.S. Philips Corporation. Electric discharge tube comprising a rod grid. 3,758,810, Cl. 313-356.000.
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Seiple, Ronald L., to United States of America, Navy. Submersible submersible underway docking unit. 3,757,722, Cl. 114-16.000.
Seitz, Karl; Klahre, Guenter; and Scheutz, Hans-Ulrich, to Ciba-Geigy AG. Anthraquinone dyestuffs. 3,758,467, Cl. 260-249.000.
Seiwert, David L.; and Hampton, Thomas L., to General Electric Company. Lightweight duct and method of making same. 3,757,827, Cl. 138-109.000.
Sekimoto, Tadahiro, to Communications Satellite Corporation. Video storage system. 3,758,713, Cl. 178-6.800.
Sekisui Kagaku Kogyo Kabushiki Kaisha: *See*—
Yammoto, Sadao; Honda, Seiichirou; and Nishio, Akira, 3,758,661.
Selby, Clark L., Jr. Self-enforcing parking system. 3,757,916, Cl. 194-1.00r.
Selis, Betty: *See*—
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Selis, Sidney M.; deceased (by Selis, Betty; executrix), to General Motors Corporation. Positive electrode for a lithium charge storage electrochemical cell. 3,758,338, Cl. 136-6.00f.
Sellmaier, Englebert; Hartling, Wolfgang; and Waltraud, Haus. Tubular spring element and a method of producing the same. 3,757,582, Cl. 73-418.000.
Sello, Stephen B.: *See*—
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Seno, Hisau; and Seno, Fushi. Rope and float assembly for use as a course demarcation line in a swimming pool. 3,757,370, Cl. 9-8.00r.
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Sewell, Windell C., 1/3 each to Smith, Fred D. and Smith, Robert L. and Smith, Robert L. Vise apparatus. 3,758,101, Cl. 269-254.00r.
Shankir, Irvin P., to ESB Incorporated. Electromedical stimulator lead connector. 3,757,789, Cl. 128-404.000.
Sharan, Haredra Nath, to Sulzer Brothers Ltd. Heat exchanger. 3,757,746, Cl. 122-250.00r.
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Shima, Takeo; Yamashiro, Seiichi; and Inata, Hiroo, to Teijin Limited. Novel polyetheresters of hydroxyalkoxyl diphenyl-4-carboxylic acid process for preparation thereof, and articles thereof. 3,758,442, Cl. 260-47.00c.
Shimamoto, Takatsugu; and Kato, Yasumasa. Apparatus for hydroponic cultivation utilizing cation exchanger. 3,757,470, Cl. 47-1.200.
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Siciliano, Anthony J., to Diamond International Corporation. Adjustable cage floor construction. 3,757,741, Cl. 119-17.000.
Sick, Erwin; Pinior, Gernot; and Plockl, Johann, to Zellweger AG. Reader mechanism for optically discernible characters. 3,758,783, Cl. 250-219.00d.
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Pfaffle, Ernst, 3,757,970.
Siddall, John B.; and Calame, Jean Pierre, to Zoecon Corporation. Epoxidized hydrocarbon amides. 3,758,516, Cl. 260-348.00a.
Sieger, George Madison; Shultz, Walter; and Krieger, Charles, to American Cyanamid Company. Method of using steroid acetonides. 3,758,686, Cl. 424-211.000.
Sieglinger, John C.: *See*—
Anderson, Frank H.; Cerny, Louis J.; Murphy, James J.; and Sieglinger, John C., 3,758,724.
Siegrist, Adolf Emil; Liechti, Peter; Maeder, Erwin; Guglielmetti, Leonardo; Meyer, Hans Rudolf; and Weber, Kurt, to Ciba-Geigy AG. Tri-aryl-azines as fluorescent whitening agents. 3,758,462, Cl. 260-240.0ea.
Siemens Aktiengesellschaft: *See*—

Eaikenberg, Dieter; Renner, Theodor; Rittmayer, Gerhard; and Winkler, Josef, 3,758,346.
Klement, Ekkehard, 3,758,876.
Kogler, Werner; Kohler, Werner; and Abou-Zied, Aly, 3,758,702.
Lohrbach, Werner, 3,757,396.
Mangelsdorf, Dietmar, 3,758,214.
Mentschel, Hellmuth, 3,758,085.
Platzoder, Karl, 3,758,832.
Schmidt, Fritz, 3,758,701.
Weinel, Johann, 3,758,786.

Sievers, William E. Portable air purifier. 3,757,495, Cl. 55-279.000.

Sifniades, Stylianos: *See—*
Fuhrmann, Robert; Sifniades, Stylianos; and Tunick, Allen Abraham, 3,758,581.

Signet Controls, Inc.: *See—*
Clinton, William D., 3,757,578.

Signetics Corporation: *See—*
Peterson, David R.; and Conragan, James, 3,758,797.

Sigrist, Willy. Apparatus for determining the amount of the dispersed phase in a suspension. 3,758,787, Cl. 250-574.000.

Silverman, Ralph H. Dental operative system. 3,757,420, Cl. 32-22.000.

Simpson, Sylvester Allan; and Smith, Howard W., to Smith, A. D., Corporation. Automatic testing apparatus. 3,758,857, Cl. 324-158.0mg.

Sindzingre, Michel Jacques Marie; Villamayor, Michel; and Robert, Alain, to Association pour la Recherche et le Developpement des Methodes et Processus Industriels A.R.M.I.N.E.S. Resistance and modulus reinforcing materials. 3,758,369, Cl. 161-60.000.

Singer Company, The: *See—*
Sweeney, David F., 3,757,922.

Singh, Salwani, to American Cyanamid Company. Photographic imaging of material containing halo azido naphthalenes. 3,758,303, Cl. 96-27.00r.

Sironi, Giuseppe: *See—*
Viviani, Bruno; Sironi, Giuseppe; and Colombini, Ariano, 3,758,293.

Skarin, Carl Richard: *See—*
Gendron, Roger J.; and Skarin, Carl Richard, 3,757,926.

SKF Industrial Trading and Development Company, N.V.: *See—*
Asberg, Sture Lennart; and Eriksson, Erik Edvin, 3,758,180.

SKF Industriele En Ontevikkeling Maatschappi: *See—*
Asberg, Stjre Lennart, 3,757,883.

Skiera, Heinz; and Schumann, Helmut, to VEB Polygraph-Leipzig and Kombinat fur Polygraphische Maschinen und Ausrustungen Leipzig. Printing plate clamping device. 3,757,690, Cl. 101-415.100.

Skinner, Harry W.: *See—*
Skinner, Harry W.; and Deeb, Fouad M., 3,758,066.

Skinner, Harry W.; and Deeb, Fouad M., to Skinner, Harry W. Apparatus for fabricating a pipe joint sealing device. 3,758,066, Cl. 249-95.000.

Skinner, Jerald Paul. Monolithic structural member and systems therefor. 3,757,481, Cl. 52-265.000.

Skoetsch, Paul B. S. Pill dispenser. 3,757,994, Cl. 221-202.000.

Sky-Eagle, William A., Jr. Decanting skimmer. 3,757,953, Cl. 210-242.000.

Sky-Van Limited: *See—*
Moulson, Donald C.; and McGuigan, James K., 3,757,897.

Skyway Machine, Inc.: *See—*
Raodman, Charles J., Jr., 3,757,892.

Slaugh, Lynn H.: *See—*
Magoon, Eugene F.; and Slaugh, Lynn H., 3,758,417.

Sletzinger, Meyer: *See—*
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,758,560.

Slick Corporation, The: *See—*
Ray, Frank M., 3,757,497.

Smart, Ray F. Tool for administering pills to animals. 3,757,781, Cl. 128-223.000.

Smejkal, Hellmuth; and Poferl, Gunter, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Water-cooled measuring probe for continuously measuring the temperature of hot liquid metal baths in great basic oxygen converters. 3,757,579, Cl 73-343.00r.

Smith, A. D., Corporation: *See—*
Simpson, Sylvester Allan; and Smith, Howard W., 3,758,857.

Smith, Basil G., to Smith, Basil, Seals, Limited. Mechanical shaft seal. 3,758,179, Cl. 308-187.100.

Smith, Basil, Seals, Limited: *See—*
Smith, Basil G., 3,758,179.

Smith, Charles T.; and Ady, Irvin B. Plant watering and fertilizing device. 3,757,469, Cl. 47-48.500.

Smith, Dalton L.: *See—*
Kitchin, James F.; and Smith, Dalton L., 3,757,751.

Smith, David F. Synthetic surgical sutures. 3,757,786, Cl. 128-335.500.

Smith, Donald F.: *See—*
Anstin, Wayne D.; Byrne, Joseph E.; Clifford, Gilbert F.; Henkel, Robert W.; Odell, Arthur W.; Quaglia, Lawrence T.; and Smith, Donald F., 3,757,941.

Smith, Edward A., to GAF Corporation. Extended filter bag. 3,757,957, Cl. 210-486.000.

Smith, Edward Howard. Liquid body waste disposal system. 3,757,357, Cl. 4-114.000.

Smith, F., & Company (Whitworth) Limited: *See—*
Collinge, Robert Alan, 3,757,548.

Smith, Fred D. and Smith, Robert L.: *See—*
Sewell, Windell C., 3,758,101.

Smith, Harold E., to Smithpac Canada Limited. Latching arrangement for tailgates. 3,757,969, Cl. 214-83.300.

Smith, Howard W.: *See—*
Simpson, Sylvester Allan; and Smith, Howard W., 3,758,857.

Smith, Hugh E., to Norton Company. Activating product. 3,758,393, Cl. 204-279.000.

Smith International, Inc.: *See—*
Pereau, Robert E., 3,757,876.

Smith, John: *See—*
Reed, Hugh Wilma Boulton; Smith, John; and Hirst, Ian, 3,758,596.

Smith, Raymond L., Jr., to C & M Manufacturing Company. Double mast side loader lift truck and double actuator balancing. 3,757,899, Cl. 187-17.000.

Smith, Robert L.: *See—*
Sewell, Windell C., 3,758,101.

Smithpac Canada Limited: *See—*
Smith, Harold E., 3,757,969.

Snarr, James L.: *See—*
Green, Donald T.; and Snarr, James L., 3,758,723.

Sneider, Charles. Carrier frame for automobiles. 3,757,975, Cl. 214-450.000.

Snub-R-Rig Corporation: *See—*
Davis, Haggai; and Robertson, Robert S., 3,757,858.

Snyder, George W., to Sperry Rand Corporation. Flex valve apparatus for sensing total horizontal and vertical ambient undirectional magnetic field. 3,758,850, Cl. 324-43.00r.

Societa Italiana Resine S.I.R.S.P.A.: *See—*
Craveri, Renato; Manachini, Pier Luigi; and Araguzzini, Fabrizio, 3,758,529.

Societa Italiana Resine S.p.A.: *See—*
Forni, Lucio, 3,758,416.

Societe Anonyme dite: L'Oreal: *See—*
Kalopissis, Gregoire; Abegg, Jean-Louis; Ghilardi, Guiliana; and De Beaulieu, Henri Philippe, 3,757,804.
Kalopissis, Gregoire; Bugaut, Andree; and Estradier, Francoise, 3,758,268.
Kalopissis, Gregoire; and Bugaut, Andree, 3,758,573.

Societe Anonyme Heurtey: *See—*
Kissel, Roland Roger, 3,758,263.

Societe Anonyme Heurtey and ELF-Union: *See—*
Pariel, Jean Marie; and Robic, Gabriel, 3,757,706.

Societe Anonyme: Glaenzer Spicer: *See—*
Orain, Michel, 3,757,534.

Societe des Accumulateurs Fixes et de Traction (Societe Anonyme): *See—*
Nau, Gilbert, 3,758,773.

Societe des Acieries de Manori-Pompey: *See—*
Bellot, Jean; and Hugo, Michel, 3,758,294.

Societe d'Etude et de Promotion d'Enterprises: *See—*
Vincens, Rene, 3,757,485.

Societe d'Etudes de Machines Thermiques: *See—*
Bastenhof, Dirk, 3,757,757.
Kohn, Karl Walter, 3,758,174.

Societe en nom Collectif Science Union et Cie Societe Francaise de Recherche Medicale: *See—*
Malen, Charles; Danree, Bernard; and Poignant, Jean-Claude, 3,758,528.

Societe Italiana Resine S.p.A.: *See—*
Piccolo, Luigi; and Calcagno, Benedetto, 3,758,675.

Societe Nationale d'Etude et de Construction de: *See—*
Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, 3,757,522.

Societe Stephanoise de Constructions Mecaniques: *See—*
Fevre, Charles M., 3,757,905.

Sodderland, George A.: *See—*
Baljet, Daniel J.; Sodderland, George A.; and Hania, John D. H., 3,757,932.

Sofinsky, Pavet Ilich; and Tsedyakov, Ivan Filippovich. Roll mould with cooling systems. 3,757,847, Cl. 164-277.000.

Soldavini, Teodore. Lawnmower and grass collector. 3,757,503, Cl. 56-202.000.

Sonic Development Corporation: *See—*
Schurig, Robert E.; and Korn, Joseph, 3,758,033.

Sony Corporation: *See—*
Baba, Hideo, 3,758,342.

Sosnowski, Stanislaw Jan Antoni: *See—*
Kemp, Kenneth Albert Walters; and Sosnowski, Stanislaw Jan Antoni, 3,758,240.

Sowards, Donald M.: *See—*
Moore, Earl P., Jr.; and Sowards, Donald M., 3,758,317.

Sowards, Donald M., to Du Pont de Nemours, E. I., and Company. Refractory materials and process for making same. 3,758,316, Cl. 106-5.000.

Sowma, Julia A. Convertible camper. 3,758,148, Cl. 296-23.0mc.

Spanel, Abram N.: *See—*
Spanel, Abram N.; and Schwartz, John L. (said Schwartz, assor. to said), 3,757,715.

Spanel, Abram N.; and Schwartz, John L., said Schwartz, assor. to said Spanel, Abram N. Needles for use with tufting machines. 3,757,715, Cl. 112-221.000.

Spero, Theodore P.: *See—*

Givens, Reuben H.; and Spero, Theodore P., 3,757,825.

Sperry Rand Corporation: *See—*
Armstrong, James B., 3,757,995.
Bennett, Clarence Leonard, Jr.; De Lorenzo, Joseph D.; and Durling, Hubert R., Jr., 3,757,501.
Breeden, Robert H., 3,758,235.
Snyder, George W., 3,758,850.
Susman, Leon; Maguire, Hugh C.; and Bohman, Carl E., 3,758,849.
Thaxter, James B., 3,758,199.

Spes, Hellmuth: *See—*
Eck, Herbert; Heckmaier, Josef; and Spes, Hellmuth, 3,758,550.

Spinola, Anthony A.: *See—*
Kuntz, John B.; and Spinola, Anthony A., 3,758,292.

Spisak, Steve, to TRW Inc. Stud welding tool and stud loading device therefor. 3,758,742, Cl. 219-98.000.

Spisak, Steve, to TRW Inc. Clutch mechanism for welding tools. 3,758,744, Cl. 219-98.000.

Spitsbergen, James C.; and Kim, Young Kwon, to Witco Chemical Company. Styrene soluble chemically resistant polyester. 3,758,639, Cl. 260-870.000.

Spitzer, Cary R.; and Stainback, Jerry D., to United States of America, National Aeronautics and Space Administration. Exposure interlock for oscilloscopy camera. 3,757,659, Cl. 95-42.000.

Spitzer, Ernst L.T.M.: *See—*
Campen, Jan P.; Spitzer, Ernst L.T.M.; Senden, Wilhelmus A. A.; and Hill, Jeffrey S., 3,758,594.

Spracklen, Stanford B.: *See—*
Ruegg, Frank A.; Spracklen, Stanford B.; and Cheatham, Burton L., II, 3,757,771.

Sprecher, Nathan; and Cotter, John Thomas, to Esso Research and Engineering Company. Isomerization-fractionation process. 3,758,604, Cl. 260-677.00a.

Staar Societe Anonyme: *See—*
Staar, Theophiel Clement Josef Lodewijk, 3,758,049.

Staar, Theophiel Clement Josef Lodewijk, to Staar Societe Anonyme. Rapid drive device for tape transports. 3,758,049, Cl. 242-201.000.

Staats, William A.: *See—*
Chang, Richard S.; Staats, William A.; Bosley, Denis V.; and Yamasaki, Toshio, 3,757,461.

Stainback, Jerry D.: *See—*
Spitzer, Cary R.; and Stainback, Jerry D., 3,757,659.

Stalker, Kenneth W., to General Electric Company. Method for improving a metal casting. 3,758,347, Cl. 148-4.000.

Stallbaumer, Richard J.: *See—*
Poyner, Weston R.; Stallbaumer, Richard J.; and Eskridge, Wade A., 3,757,524.

Stamberger, Paul, to Union Optics Corporation. Copolymers and hydrogels of unsaturated esters. 3,758,448, Cl. 260-86.10e.

Stamicarbon N.V.: *See—*
Suverkropp, Geerthrudes H.; and Reichrath, Werner, 3,758,494.

Standard Oil Company: *See—*
Hughes, Robert D.; and Steigelmann, Edward F., 3,758,605.
Steigelmann, Edward F.; and Hughes, Robert D., 3,758,603.

Standardwerk Eugen Reis GmbH: *See—*
Puhahn, Werner; and Lampert, Rolf, 3,757,805.

Stankevich, Jury Leonidovich: *See—*
Avilov, Ernest Alexeevich; Vasilievich, Nikolai; Galtsov, Vladimir Vasilievich; Zykov, Anatoly Petrovich; Kanunov, Mikhail Alexeevich; Kiselev, Jury Vladimirovich; Mityaev, Mikhail Vladimirovich; Nikitin, Vyacheslav Vladimirovich; Razin, Anatoly Alexandrovch; Stankevich, Jury Leonidovich; Tsukerman, Veniamin Aronovich; and Eig, Lev Samuilovich, 3,758,804.

Stanley Works, The: *See—*
Ergene, Mehmet T., 3,758,319.

Stanton, Stephen, to Precision Industries, Inc., mesne. Last stitch and tie stitch placing system. 3,758,015, Cl. 227-7.000.

Stapleford, Gary N.: *See—*
Radford, Robert E.; and Stapleford, Gary N., 3,758,782.

Stapley, Derek E., to Sundstrand Corporation. Bearing pack. 3,758,176, Cl. 308-6.00c.

Starkey, Donald L.: *See—*
Schmitt, Joseph W.; Mosakowski, James E.; and Starkey, Donald L., 3,758,870.

Stasio, Robert; and Butera, Thomas, Jr. Loose leaf notebook sheet lifter. 3,758,219, Cl. 402-80.001.

State of Defence, Secretary of: *See—*
Goodwin, John R., 3,758,234.
Wallett, John Stanley, 3,758,232.

State of Israel, Atomic Energy Commission: *See—*
Chavet, Itzhak, 3,757,962.

Stauber, Siegfried; Ciger, Nicolas; and Schaeffer, Klaus-Peter, to Osswald, E., Firma. Circuit arrangement for infinite speed regulation of induction motors. 3,758,837, Cl. 318-212.000.

Stauffer Chemical Company: *See—*
Pallos, Ferenc M., 3,758,685.

Stearns, Charles F.: *See—*
Baum, James A.; and Stearns, Charles F., 3,757,639.

Steelcase, Inc.: *See—*
Fries, Bernard J., 3,758,157.

Stefani, Joseph P., to General Electric Company. Relay center for remote control wiring system. 3,758,828, Cl. 317-113.000.

Steigelmann, Edward F.: *See—*
Hughes, Robert D.; and Steigelmann, Edward F., 3,758,605.

Steigelmann, Edward F.; and Hughes, Robert D., to Standard Oil Company. Process for separation of unsaturated hydrocarbons. 3,758,603, Cl. 260-677.00a.

Stein, Wolfgang J., to Avco Corporation. Drive assembly with compensation for misalignment. 3,757,535, Cl. 64-9.00r.

Steinbach, Heinz, to Institut Dr. Forster. Pipe conveyor apparatus. 3,757,974, Cl. 214-339.000.

Steinberg, David: *See—*
Dexter, Martin; and Steinberg, David, 3,758,549.

Steiner, Adolf; and Rinnergschwentner, Hans, to Diamler-Benz Aktiengesellschaft. Steering spindle for motor vehicles, especially for commercial-type vehicles. 3,757,885, Cl. 180-89.00a.

Steinkamp, Norman A.; and Stipanuk, John M., to Sunbeam Corporation. Food mixer storage rack. 3,758,183, Cl. 312-292.000.

Stellman, Gerald B. Litter device. 3,757,359, Cl. 5-81.000.

Stendel, Koeln Wilhelm: *See—*
Hoffman, Hellmut; Hammann, Ingelborg; and Stendel, Koeln Wilhelm, 3,758,487.

Stenwall, Lauri. Combined beach chair and shopping cart. 3,758,128, Cl. 280-47.250.

Stephenson, Robert L.; and Radke, Donald G., to Allied Chemical Corporation. Inflation apparatus for safety device. 3,758,131, Cl. 280-150.0ab.

Sterigard Corporation: *See—*
Bruce, Roger K.; and Marhold, Werner, 3,757,651.

Sterling Drug Inc.: *See—*
Alexander, Ernest John; and Mooradian, Aram, 3,758,496.
Crounse, Nathan N.; Werner, Raymond E.; and Dimond, Harold L., 3,758,575.

Steudal, Goetz Wolfgang: *See—*
Heuner, Robert Charles; and Steudal, Goetz Wolfgang, 3,758,792.

Stevens, J. P., & Co., Inc.: *See—*
Gaj, Bernard J.; and Sello, Stephen B., 3,758,554.
Laney, Campbell P., Jr.; White, William Thomas; and Mercer, Harry L., 3,757,545.

Stevenson, Robert L. Wood heater with viewing window. 3,757,766, Cl. 126-60.000.

Stewart, George E. Breakaway step for high-clearance vehicles. 3,758,134, Cl. 280-163.000.

Stiebel, Ariel, to Radex Corporation. Digital foot measuring instrument. 3,757,418, Cl. 33-3.00c.

Stilwell, Daisy D. Collapsible picture frame. 3,757,445, Cl. 40-154.000.

Stipanuk, John M.: *See—*
Steinkamp, Norman A.; and Stipanuk, John M., 3,758,183.

Stokstad, Paul A. Optical bench and components therefor. 3,758,217, Cl. 356-256.000.

Stoliman, Donald D., to General Motors Corporation. Throttle pedal actuated throttle return. 3,757,758, Cl. 123-198.0db.

Stolzer, Claus; Hammann, Ingeborg; Unterstenhofer, Gunter; and Homeyer, Bernhard, to Bayer Aktiengesellschaft. O, N-Di-aliphatic hydrocarbon-S-(N-monoalkylicarbamyl-methyl)-thionothiolphosphoric acid ester amides. 3,758,644, Cl. 260-940.000.

Stone Container Corporation: *See—*
Gordon-Ross, Ronald H., 3,758,021.

Stoneham, Jeffrey R., to Eastman Kodak Company. Film metering mechanism for cameras. 3,757,658, Cl. 95-31.0fm.

Stora, Guy Daniel: *See—*
Caruel, Jacques Emile Jules; Cantaloube, Bernard Andre; Stora, Guy Daniel; Bedue, Jean Robert; Gastebois, Philippe Marc Denis; and Guillevere, Herve Alain, 3,757,522.

Stout, James T., to Mead Corporation, The. Article carrier. 3,757,991, Cl. 220-113.000.

Stout, Lilburn G.: *See—*
McAlexander, Robert L.; and Stout, Lilburn G., 3,758,052.

Stover, William A.: *See—*
Oleck, Stephen M.; Schwartz, Albert B.; and Stover, William A., 3,758,402.

Strader, James W., to Strader, Jim, Capt., Inc. Fishing lure. 3,757,455, Cl. 43-42.140.

Strader, Jim, Capt., Inc.: *See—*
Strader, James W., 3,757,455.

Straits, Ernest J., to Interlake, Inc. Gang chair construction. 3,758,155, Cl. 297-248.000.

Stratton, Craig A. Airplane kite. 3,758,057, Cl. 244-154.000.

Strauss, Edmar; Foth, Seigfried; and Kaltschmidt, Hans-Jurgen, to Licentia Patent-Verwaltungs-G.m.b.H. Insulated coils for electrical machines. 3,758,706, Cl. 174-120.0sr.

Strelakos, George P. Noise maker to be worn on the foot. 3,757,466, Cl. 46-175.000.

Strelitz, Robert A.: *See—*
Elion, Gertrude B.; and Strelitz, Robert A., 3,758,684.

Streule, Josef; and Brot, Blasius. Cigarette or cigar filter. 3,757,802, Cl. 131-187.000.

Strickland, Alvah T., to United States of America, Navy. Depth compensator valve. 3,757,719, Cl. 114-16.00e.

Strickland, John C.; and Bunn, Dorrance P., Jr., to Texaco Inc. Combination cracking process for converting paraffinic naphtha into high octane gasoline. 3,758,628, Cl. 260-683.430.

Strickler, Allen, to Beckman Instruments, Inc. Resolution and symmetry control in continuous free flow electrophoresis. 3,758,395, Cl. 204-180.00r.

Striedieck, Walter J.; and Woodring, Daniel, to Chemcut Corporation. Preferential etching method for ferrous base metals. 3,758,351, Cl. 156-18.000.
Strom, Martin. Obstruction removal apparatus. 3,757,375, Cl. 15-104.300.
Struble, Glenn E., to Diamond International Corporation. Multi-use garment box. 3,758,019, Cl. 229-16.00r.
Stubblebine, Warren: *See—*
Szabrak, Robert H.; and Stubblebine, Warren, 3,757,672.
Stubiger, Ernst: *See—*
Frohlich, Alfons; Cappel, Marie-Luisf; and Stubiger, Ernst, 3,757,541.
Studer, Paul R., Jr.: *See—*
Salzman, Paul K.; and Studer, Paul R., Jr., 3,757,633.
Sturge, Derek William James; and Cox Gough, John Richard, to United Kingdom Atomic Energy Authority. Nuclear fuel compacts of coated particle fuel. 3,758,648, Cl. 264-.500.
Stutz, Hansruedi, to Aktiengesellschaft Gebruder Loepfe. Electronic appliance for setting and checking electronic yarn clearers. 3,758,216, Cl. 356-200.000.
Sugaya, Hiroshi; and Sakumoto, Hideki, to Matsushita Electric Industrial Co., Ltd. Tape cassette. 3,758,048, Cl. 242-192.000.
Sugimoto, Noritsugu: *See—*
Sakurai, Masao; Muto, Kikuo; and Sugimoto, Noritsugu, 3,758,370.
Sulzer Brothers Ltd.: *See—*
Gyurech, Gabor, 3,758,226.
Kreissig, Ernst Florian; and Feuerlein, Karl, 3,757,702.
Rohner, Rudolf, 3,757,646.
Sharan, Haredra Nath, 3,757,746.
Sumino, Shouji, to Brother Kogyo Kabushiki Kaisha. Wig dryer. 3,757,429, Cl. 34-103.000.
Sumitomo Chemical Company, Limited: *See—*
Matsui, Masanao; and Okuno, Yositose, 3,758,504.
Sumitomo Electric Industries, Ltd.: *See—*
Motoyoshi, Kenya; and Kawakita, Takao, 3,758,281.
Sun Oil Company: *See—*
Turner, John O., 3,758,598.
Turner, John O., 3,758,610.
Sun Research and Development Co.: *See—*
Cassar, Richard D., 3,758,637.
Sunbeam Corporation: *See—*
Laama, Vello; and Grahn, Robert Donald, 3,757,670.
Steinkamp, Norman A.; and Stipanuk, John M., 3,758,183.
Sundstrand Corporation: *See—*
Stapley, Derek E., 3,758,176.
Super Whip Valve Mfg. Co.: *See—*
Rosen, Joseph L., 3,758,007.
Susman, Leon; Maguire, Hugh C.; and Bohman, Carl E., to Sperry Rand Corporation. Metal detector system having identical balanced field coil systems on opposite sides of a detection zone. 3,758,849, Cl. 324-41.000.
Suverkropp, Geerthrudes H.; and Reichrath, Werner, to Stamicarbon N.V. Process for the preparation of 5-(4-amino butyl)-hydantoin. 3,758,494, Cl. 260-309.500.
Svenson, Bert N., to Instrument System Corporation, mesne. Variable-ratio belt-type transmission for engine-driven cycle, incorporating pedal-operated engine starting means. 3,757,593, Cl. 74-230.70a.
Svensson, Karl-Erik: *See—*
Neovius, Torsten Otto; and Svensson, Karl-Erik, 3,757,505.
Sweeney, David F., to Singer Company, The. Printer carrier drive. 3,757,922, Cl. 197-49.000.
Sweeney, Richard F.: *See—*
Anello, Louis G.; and Sweeney, Richard F., 3,758,543.
Sweet, Roger L., to Ross Operating Valve Company. Safety control valve system for fluid actuated devices. 3,757,818, Cl. 137-596.600.
Swingline Inc.: *See—*
Olney, Nathaniel M.; Hurkmans, Antoon M.; Barrett, Edward E.; and Leff, Martin J., 3,758,016.
Sybron Corporation: *See—*
Bartsch, Friedrich F.; and Feigin, Robert, 3,758,269.
Sydenham, Leonard: *See—*
Connelly, William; Sydenham, Leonard; and Szilagyi, John, 3,758,428.
Syncom Incorporated: *See—*
Baskin, John Y.; Bender, Miles D.; and Daugherty, Robert D., 3,757,374.
Syntex Corporation: *See—*
Alvarez, Francisco Sanchez, 3,758,544.
Bax, Pieter C.; Henderson, Margaret S.; and Rammler, David H., 3,758,456.
Edwards, John A., 3,758,517.
Moffatt, John G., 3,758,582.
Nelson, Peter H.; Unich, Karl G.; and Fried, John H., 3,758,583.
Szabo, Marton J., to Philadelphia Handle Company, Inc. Sheathed soft-feel handle and method of making same. 3,758,360, Cl. 156-273.000.
Szabrak, Robert H.; and Stubblebine, Warren, to Sam Stein Associates, Inc. Deep fat fryer feeding apparatus. 3,757,672, Cl. 99-404.000.
Szakaly, Judit: *See—*
Kasztreiner, Endre; Vargha, Laszlo; Huszti, Zsuzsanna; Borsi, Jozsef; Szilagyi, Geza; Szakaly, Judit; Elek, Sandor; and Polgari, Istvan, 3,758,546.
Szilagyi, Geza: *See—*
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Szilagyi, John: *See—*
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Tabor, Joseph A.: *See—*
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Tada, Minoru, to Kabushiki Kaisha Chuogoraku Kenkyusha. Occupant propelled rotatable seesaw. 3,758,108, Cl. 272-30.000.
Taft, David D.; and Shepler, Terry H. Hot melt compositions. 3,758,431, Cl. 260-27.000.
Taihei Industries, Co., Ltd.: *See—*
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Takahashi, Yasunobu, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the preparation of N,N-dialkylamides. 3,758,576, Cl. 260-561.00r.
Takeda Chemical Industries, Ltd.: *See—*
Wada, Takeo, 3,758,415.
Takeda, Hiromu, to Toray Industries, Inc. Method of manufacturing fibers and films from an acrylonitrile copolymer. 3,758,659, Cl. 264-182.000.
Takehara, Masahiro: *See—*
Yoshida, Ryonosuke; Yoshimura, Ippei; and Takehara, Masahiro, 3,758,525.
Talley, James C.; Grace, Fred I.; and Mc Cleskey, Francis R., to United States of America, Navy. Fragment core warhead. 3,757,694, Cl. 102-67.000.
Tamura, Noriyoshi: *See—*
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Tamura, Tatsuo: *See—*
Aya, Masahiro; Saito, Junichi; Fukazawa, Nobuo; Tamura, Tatsuo; Kurihara, Kazuo; and Morishima, Norihisa, 3,758,481.
Tanaka, Yushiyuki. Emergency stop switch means for a snowmobile or the like. 3,758,736, Cl. 200-157.000.
Tang, Pak-Chong, to RCA Corporation. Wide angle deflection system. 3,758,814, Cl. 315-27.0td.
Tani, Mitsuo: *See—*
Izumi, Yusuke; Kawasaki, Yuzo; and Tani, Mitsuo, 3,758,615.
Taniguchi, Kenji; and Imaizumi, Ichiro, to Hitachi, Ltd. Current switch circuit. 3,758,791, Cl. 307-215.000.
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Taub, Ronald H.: *See—*
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Taylor, David John; and Mednis, Aris. Clamping devices. 3,758,100, Cl. 269-203.000.
Taylor, James F.: *See—*
Golden, James E.; and Taylor, James F., 3,758,703.
Taylor, Lynn J., to Owens-Illinois, Inc. Polymer and process for producing same from an epoxy monomer and a silicon containing co-reactant. 3,758,423, Cl. 260-2.0ec.
Taylor, Peter Graham, to Cambridge Scientific Instruments Limited. Disengageable nut and screw arrangement. 3,757,591, Cl. 74-89.150.
Taylor, Stanford E.; and Harbor, Lloyd. Controlled reading device. 3,757,432, Cl. 35-35.00b.
TDM Corporation: *See—*
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Teac Corporation: *See—*
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Techni-Toll Inc.: *See—*
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Teep Toxic Control Ltd.: *See—*
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Teijin Limited: *See—*
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Telefonaktiebolaget L M Ericsson: *See—*
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Templin, Gail H. Apparatus for pre-fabricating wood structures. 3,757,681, Cl. 100-214.000.

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Tenneco Chemicals Inc.: *See—*
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Terada, Kinji. Method for processing a vital, flavoured egg. 3,758,256, Cl. 426-281.000.

Teske, Fritz; Teske, Lothar; and Dreismann, Robert. Apparatus for discharging bulk material from storage bunkers. 3,757,968, Cl. 214-17.00b.

Teske, Lothar: *See—*
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Tevelow, Frank L.; Blackburn, James C.; and Tischer, Frederick J., to United States of America, Army. RF transmission through a plasma. 3,758,862, Cl. 325-65.000.

Texaco Development Corporation: *See—*
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Texaco Inc.: *See—*
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Therres, John J. Fishing line float. 3,757,453, Cl. 43-43.140.

Thicthener, Edward P., to Savin Business Machines Corporation. Electrostatic charging apparatus. 3,758,779, Cl. 250-325.000.

Thill, Bruce P., to Dow Chemical Company, The. Cross-linking of addition polymers containing combined free carboxyl by reaction with di-2-oxazoline. 3,758,629, Cl. 260-80.800.

Thill, Norbert: *See—*
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Thiokol Chemical Corporation: *See—*
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Thomas, Carlton E.; and Massey, Norman G., to KMS Industries, Inc. Method and apparatus for recording intelligence on a sheet material. 3,758,187, Cl. 350-3.500.

Thomas, William Erbie, Jr.: *See—*
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Thompson, Clarence E. Combination household implement. 3,757,368, Cl. 7-14.250.

Thompson, Emily Herman: *See—*
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Thompson, George J.; and Dutton, Vance D., to Marion Power Shovel Company, Inc. Boom point sheave assembly. 3,757,959, Cl. 212-1.000.

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Setzer, Henry J.; and Thompson, George S., 3,758,043.

Thompson, John I., & Company: *See—*
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Thomsen, Jack W.; Nupnau, Arthur E.; Kim, Raymond W. H.; and Cherniavskyj, Jaroslav, to Bell & Howell Company. Motion picture projector. 3,758,047, Cl. 242-181.000.

Thomson-CSF: *See—*
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Thorn, Herbert, to Ideal Toy Corporation. Doll leg connector. 3,757,458, Cl. 46-161.000.

Thorne, David Edward: *See—*
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Thorpe, Donald H., to Hooker Chemical Corporation. Polymer composition comprising vinylmonomer-butadiene polymer graft copolymer and a polyester. 3,758,640, Cl. 260-873.000.

Thuillier, Jean Eugene: *See—*
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Tichenor, Robert Lauren, to Du Pont de Nemours, E. I., and Company. Compositions and processes. 3,758,271, Cl. 8-172.000.

Tikhonov, Sergei Alexeevich; Judin, Gennady Georgievich; and Babushkina, Ninel Alexandrovna. Filter separator for wet enrichment of finely dispersed materials. 3,757,948, Cl. 210-102.000.

Timrots, Imants: *See—*
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Tobin, Joseph M.; and Adelsberg, Lee M., to Westinghouse Electric Corporation. Forming dense carbide articles from molten refractory metal contained in carbonaceous mold. 3,758,662, Cl. 264-332.000.

Tokunaga, Ikuo, to Kabushiki Kaisha Suwa Seikosha. Cursor ring for a wrist watch. 3,757,513, Cl. 58-152.00r.

Tokuyama Soda Kabushiki Kaisha: *See—*
Izumi, Yusuke; Kawasaki, Yuzo; and Tani, Mitsuo, 3,758,615.

Tolstiev, Valery Petrovich: *See—*
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Tomita, Takao; and Uesugi, Masayoshi, to Honda Giken Kogyo Kabushiki Kaisha. Apparatus for supporting the gear shift lever for operating the transmission of a motorcar. 3,757,884, Cl. 180-77.00r.

Toperzer, John W.; and Beachy, Dale K., to Koppers Company, Inc. Strand cooling support system. 3,757,849, Cl. 164-282.000.

Torama, Tadashi: *See—*
Kawada, Toshio; Torama, Tadashi; and Kobayashi, Tamio, 3,758,789.

Toray Industries, Inc.: *See—*
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Torbett, Richard L., to Alsco Anaconda Inc. Sill trim strip and panel siding. 3,757,483, Cl. 52-522.000.

Tordion, Georges: *See—*
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Tornmarck, Sven Ivan Arvid: *See—*
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Tosarelli, Gianni: *See—*
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Toth, Albert S. Two-way filter. 3,757,954, Cl. 210-277.000.

Toth, John Arpad, to Mindrill Limited. Drilling apparatus. 3,758,059, Cl. 248-23.000.

Toth, Laszlo, to Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat. Auxiliary battery for motor vehicles. 3,758,345, Cl. 136-181.000.

Tourtellotte, John F.; Negra, John S.; Warshaw, Abe; and Villiers-Fisher, John F., to Chemical Construction Corporation. Integrated engine exhaust emission control system. 3,757,521, Cl. 60-274.000.

Townhill, Arthur. Golf club bag stands. 3,758,061, Cl. 248-96.000.

Toyota Jidosha Kabushiki Kaisha: *See—*
Ishikawa, Masakazu; Shibatani, Jyuichi; and Shiomi, Masanao, 3,758,129.

Tranchero, Jacques. Mobile lift apparatus particularly for motor vehicles with automatic safety device. 3,758,076, Cl. 254-8.00r.

Transelektro Magyar Villamossagi Kulkereskedelmi Vallalat: *See—*
Toth, Laszlo, 3,758,345.

Trapp, Robert Lee, to Deere & Company. Snowmobile idler wheel mounting. 3,758,169, Cl. 305-32.000.

Trask, Allen, to Mechaniwatt Corporation, The. Automatic air conditioning system. 3,758,368, Cl. 165-21.000.

Trbovich, Nicholas D.; Meyer, William H.; Bean, Edwin T., Jr.; and Robinson, William P., said Meyer, Bean and Robinson, assors. to Servotronics, Inc. Amusement game. 3,758,113, Cl. 273-120.00r.

Treadwell Corporation: *See—*
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Tregillis, John S.; and Schuft, Lester E. Method and apparatus for repairing dentures. 3,758,096, Cl. 269-7.000.

Tremblay, Gilles: *See—*
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Tremblay, Meude: *See—*
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Tung, Chi Fang, to Minnesota Mining and Manufacturing Company. Infrared-transmissive, visible-light absorptive retro-reflectors. 3,758,193, Cl. 350-150.000.
Tunick, Allen Abraham: *See—*
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Turner, David Lilley, to National Research Development Corporation. Hose clips. 3,757,394, Cl. 24-281.000.
Turner, John O., to Sun Oil Company. Synthesis of aliphatic and alicyclic ethers. 3,758,598, Cl. 260-614.00r.
Turner, John O., to Sun Oil Company. Preparation of isoprene from isobutylene and methylal. 3,758,610, Cl. 260-681.000.
Ueda, Hiroshi: *See—*
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Uematsu, Eiji; Nakada, Katuharu; and Arakawa, Toshihimu, to Daicel Ltd. Process for producing granular potassium sorbate. 3,758,563, Cl. 260-526.00n.
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Ugalde, Clyde Francis: *See—*
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Umholtz, Franklyn G.; Scott, Donald E.; and Douglas, James M., to Manufacture of deep, narrow, hollow articles. . 3,757,411, Cl. 29-421.00e.
Ungerboeck, Gottfried J., to International Business Machines Corporation. Device for equalizing binary bipolar signals. 3,758,863, Cl. 325-321.000.
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National Aeronautics and Space Administration; Administrator; with respect to an invention of:
Kariotis, Anthony H. Compression test assembly. 3,757,568, Cl. 73-94.000.
Rasmussen, Hans P. Transparent switchboard. 3,758,718, Cl. 178-18.000.
Schiffner, Gerhard. Power supply for CO_2 lasers. 3,758,877, Cl. 331-94.500.
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U.S. Philips Corporation: *See—*
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Viviani, Bruno; Sironi, Giuseppe; and Colombini, Ariano, to Montecatini Edison S.p.A. Process for purifying pyrite ashes of non-ferrous metals, arsenic and sulfur. 3,758,293, Cl. 75-23.000.

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Wallace, Griffith. Apparatus for cooking or heating foodstuffs. 3,757,673, Cl. 99-410.000.
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Weinberger, Lester, to Xerox Corporation. Photoelectrophoretic imaging process. 3,758,305, Cl. 96-1.300.
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Weiss, Martin Joseph; Gibs, Gabriel Joseph; Poletto, John Frank; and Remers, William Alan. Substituted heterocyclic derivatives of azepine. 3,758,501, Cl. 260-326.900.
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Wilbright, Arthur E. Barbecue grill with tilt top and shifting fire box. 3,757,675, Cl. 99-446.000.

Wilder, Arthur G.; and Bridwell, Harold C., to Christensen Diamond Products Company. Drill bits and methods of producing drill bits. 3,757,878, Cl. 175-329.000.

Wilder, Arthur G.; and Bridwell, Harold C., to Christensen Diamond Products Company. Drill bits and methods of producing drill bits. 3,757,879, Cl. 175-329.000.

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Will, Harold C., to Crompton & Knowles Corporation. Coloring nickel modified olefinic polymers with an aromatic anthrahydroxy carboxylic acid and azo pigment, print paste composition and fibers colored thereby. 3,758,270, Cl. 8-42.00d.

Willach, Horst, to Huwil-Werke Hugo Willach of Sohne. Magnetic lock with relatively slidable elements. 3,757,551, Cl. 70-276.000.

Willcox, Leland J. Golf ball practice driving apparatus. 3,758,118, Cl. 273-201.000.

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Williams, Jerome. Machine for compressing and flattening junked automobiles. 3,757,680, Cl. 100-100.000.

Williams, Patrick Yelverton. Collapsible wheel chair. 3,758,150, Cl. 297-45.000.

Williams, Raymond, to United Kingdom Atomic Energy Authority. Air bearings. 3,758,177, Cl. 308-9.000.

Williamson, Ronald Eugene; Porter, Sidney Clark, Jr.; and Shotting, Kenneth Frederic, to Combustion Engineering, Inc. Automated bricklaying device. 3,757,484, Cl. 52-749.000.

Willner, Horst, to Bayerische Berg-, Hutten- und Salzwerke Aktiengesellschaft. Solar and planetary gear system with load pressure compensation. 3,757,608, Cl. 74-801.000.

Wilson, Bruce N.; and Hindersinn, Raymond R., to Hooker Chemical Corporation. Oxyalkylated derivatives of phenolphthalein. 3,758,422, Cl. 260-47.0eq.

Wilwerding, Dennis Joseph, to Honeywell Inc. Computer type flash apparatus with noise inhibiting quench circuit. 3,758,822, Cl. 315-241.00p.

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Winkler, Joseph, to Tenneco Chemicals, Inc. Vinyl polymer plastisol composition. 3,758,430, Cl. 260-27.00r.

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Wong, Thomas Y., to General Electric Company. Non-contract vibrator velocity apparatus. 3,757,565, Cl. 73-71.400.

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LIST OF DEFENSIVE PUBLICATIONS

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Bradt, Richard W. Jr., to E. I. du Pont de Nemours and Co. Flexible epoxy-coated dielectric. T914,003, 9–11–73, Cl. 117—138.80.

Brown, Wade H., J. M. Farber, and P. P. Klemchuk. Stabilization of polymers for wire and cable applications. T914,009, 9–11–73. Cl. 260—45.85.

Burnett, Glenna E.: *See*—
Coney, Charles H., and Burnett. T914,005.

Coney, Charles H., and G. E. Burnett. Coating compositions. T914,005, 9–11–73, Cl. 260—15.

Du Pont de Nemours, E. I. and Co.: *See*—
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Hamilton, William L., and Lindsey. T914,010.

Farber, Joseph M.: *See*—
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Franks, Douglas G. Workpiece holding fixture. T914,002, 9–11–73. Cl. 269—120.

Grant, Peter M., and H. R. Lyon. Power coating process. T914,001, 9–11–73, Cl. 117—17.

Hamilton, William L., and W. B. Lindsey, to E. I. du Pont de Nemours and Co. A nonmetallic, plastic and glass fiber toaster package. T914,010, 9–11–73, Cl. 99—171.

Hignett, Travis P., and A. J. Smith. Production of chloride-free potassium phosphates. T914,007, 9–11–73. Cl. 71—34.

Klemchuk, Peter P.: *See*—
Brown, Wade H., Farber, and Klemchuk. T914,009.

Lindsey, William B.: *See*—
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Litz, Donald C., to Westinghouse Electric Corp. Fluid-cooled rotating member with improved coolant exhaust structure for super-conducting dynamoelectric machinery. T914,004, 9–11–73. Cl. 310—52.

Lyon, Herbert R.: *See*—
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McConnell, Richard L., and W. C. Wooten. Reacting unsaturated dicarboxylic acids, anhydrides and esters thereof with polyethylene. T914,008, 9–11–73, Cl. 260—78.40.

Moore, Neal D.: *See*—
Williamson, Phebus C., and Moore. T914,006.

Smith Antony J.: *See*—
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Williamson, Phebus C., and N. D. Moore. Multigrid scrubber for gas-liquid streams. T914,006, 9–11–73, Cl. 55—73.

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LIST OF REISSUE PATENTEES

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Daniels, Charles K., and J. P. McCarthy, to E. G. & G. International, Inc. Underwater guidance method and apparatus. Re. 27,750, 9–11–73, Cl. 340—3.

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Greer Hydraulics, Inc.: *See*—
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Wilson, Michael C.: *See*—
O'Neil, Robert A., and Wilson. 228,338.
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CLASS 2

224R 3,757,354

CLASS 4

110 3,757,355
112 3,757,356
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CLASS 5

81 3,757,359
113 3,757,360
184 3,757,361
317 3,757,363
338 3,757,364
3,757,365
347 3,757,366
348WB 3,757,362

CLASS 7

14.25 3,757,368

CLASS 8

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21B 3,758,269
42D 3,758,270
172 3,758,271
3,758,272

CLASS 9

8R 3,757,369
3,757,370
316 3,757,371

CLASS 10

86R 3,757,372

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93R 3,757,374
104.3SN 3,757,375
202 3,757,376
230.19 3,757,378
250.04 3,757,379
250.32 3,757,377
256.51 3,757,381
257.05 3,757,380
389 3,757,382

CLASS 16

45 3,757,383
97 3,757,384
110 3,757,385

CLASS 17

70 3,757,386

CLASS 21

54R 3,758,273

CLASS 23

253R Re.27,756
259 3,758,274
3,758,275
267A 3,758,276
285 3,758,277
288F 3,758,278
288R 3,758,279

CLASS 24

81CC 3,757,387
113MP 3,757,388
126 3,757,390
150R 3,757,389
205.1R 3,757,391
238 3,757,392
252CP 3,757,393
281 3,757,394

CLASS 28

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CLASS 29

33T 3,757,396
105R 3,757,397
116AD 3,757,398
116R 3,757,399
159A 3,757,400
3,757,401
182 3,758,281
200D 3,757,404
200P 3,757,405
203H 3,757,406
212R 3,757,407
235 3,757,402
237 3,757,408
254 3,757,409
416 3,757,411
420.5 3,757,410
424 3,757,403
429.2 3,757,412
557 3,757,413
580 3,757,414
604 3,757,415

CLASS 30

4R 3,757,416
179 3,757,417

CLASS 32

22 3,757,420
3,757,421
59 3,757,419

CLASS 33

3C 3,757,418
76R 3,757,422
174C 3,757,424
174R 3,757,423
179.5D 3,757,425

CLASS 34

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9.5 3,757,428
32 3,757,427
103 3,757,429

CLASS 35

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16 3,757,430
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26 3,758,695
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35B 3,757,432
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CLASS 36

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30R 3,757,435
46.5 3,757,436
59R 3,757,437

CLASS 37

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195 3,757,439

CLASS 38

17 3,757,440

CLASS 40

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125H 3,757,443
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130B 3,757,444
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CLASS 42

42R 3,757,446
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59 3,757,448
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42.1 3,757,451
42.14 3,757,455
42.16 3,757,454
42.25 3,757,452
43.14 3,757,453
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3,757,457

CLASS 44

62 3,758,283
69 3,758,282

CLASS 46

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118 3,757,463
135R 3,757,465
161 3,757,458
175 3,757,466
202 3,757,459
240 3,757,467
243AV 3,757,461
3,757,462
244A 3,757,464

CLASS 47

1.2 3,757,470
34.13 3,757,468
48.5 3,757,469

CLASS 49

2 3,757,471
40 3,757,472
380 3,757,473

CLASS 51

33W 3,757,474

CLASS 52

23 3,757,475
79 3,757,477
80 3,757,478
222 3,757,479
241 3,757,480
265 3,757,481
405 3,757,482
522 3,757,483
646 3,757,476
731 3,757,485
749 3,757,484

CLASS 53

162 3,757,486
334 3,757,487

CLASS 55

67 3,757,490
73 3,757,488
74 3,757,489
107 3,757,491
181 3,757,492
234 3,757,494
242 3,757,493
279 3,757,495
293 3,757,496
302 3,757,497
440 3,757,498
500 3,757,499

CLASS 56

6 3,757,500
10.2 3,757,501
28 3,757,502
202 3,757,503
328R 3,757,504

CLASS 57

34R 3,757,505
58.95 3,757,506
156 3,757,507

CLASS 58

2 3,757,508
23R 3,757,509
3,757,510
50R 3,757,511
90B 3,757,512
152R 3,757,513

CLASS 59

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CLASS 60

13F 3,757,515
26 3,757,516
39.18R 3,757,517
39.71 3,757,522
202 3,757,518
219 3,757,520
274 3,757,521
286 3,757,519
477 3,757,523
483 3,757,524
492 3,757,525

CLASS 61

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49 3,757,527
53.52 3,757,528
72.6 3,757,529

CLASS 62

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117 3,757,530
156 3,757,531
278 3,757,532
303 3,757,533

CLASS 64

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9R 3,757,535

CLASS 65

31 3,758,284
64 3,758,285
334 3,758,286

CLASS 66

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9R 3,757,537
19 3,757,538
173 3,757,539
192 3,757,540
193 3,757,541

CLASS 68

12R 3,757,542
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17R 3,757,543
43 3,757,545
44 3,757,546
176 3,757,547
205R 3,757,548

CLASS 70

232 3,757,549
3,757,550
276 Re.27,753
3,757,551

CLASS 71

12 3,758,287
90 3,758,288

CLASS 72

12 3,757,552
21 3,757,553
43 3,757,554
63 3,757,555
234 3,757,556
311 3,757,557
354 3,757,558
379 3,757,559
458 3,757,560
461 3,757,561

CLASS 73

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37.5 3,757,563
45.1 3,757,564
45.4 3,757,587
71.4 3,757,565
78 3,757,566
81 3,757,567
94 3,757,568
104 3,757,569
116 3,757,570
3,757,571
3,757,572
136A 3,757,580
141A 3,757,573
150A 3,757,574
152 3,757,575
194EM 3,757,576
209 3,757,577
231R 3,757,578
247 3,757,581
343R 3,757,579
418 3,757,582
421.5R 3,757,583
425.4P 3,757,584
425.6 3,757,585
432R 3,757,586
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502 3,757,589

CLASS 74

10.33 3,757,590
89.15 3,757,591
112 3,757,592
230.17A 3,757,593
230.17F 3,757,594
245C 3,757,595
471XY 3,757,597
473R 3,757,598
3,757,600
473 3,757,599
491 3,757,596
492 3,757,601
499 3,757,602
513 3,757,603
529 3,757,604
733 3,757,606
751 3,757,605
761 3,757,607
801 3,757,608
826 3,757,609
843 3,757,610
860 3,757,611
865 3,757,612

CLASS 75

10R 3,758,290
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20F 3,758,291
23 3,758,293
24 3,758,292
122 3,758,294
3,758,295
3,758,296
126C 3,758,297
138 3,758,298
171 3,758,299

CLASS 81

57.22 3,757,613
119 3,757,614

CLASS 82

9R 3,757,615
36R 3,757,616

CLASS 83

1 3,757,617
65 3,757,619
88 3,757,620
157 3,757,621
165 3,757,622
168 3,757,623
271 3,757,624
404.1 3,757,625
471.3 3,757,618
542 3,757,626
558 3,757,627
745 3,757,628

CLASS 84

1.16 3,758,696
425 3,758,697
485 3,758,698

CLASS 85

49 3,757,629
62 3,757,630

CLASS 86

20R 3,757,631

CLASS 87

1 Re.27,749

CLASS 89

1R 3,757,632
1.5R 3,757,633
36H 3,757,635
145 3,757,634
169 3,757,636

CLASS 90

17 3,757,637
46 3,757,638

CLASS 91

47 3,757,639
49 3,757,640
171 3,757,641
176 3,757,642
411R 3,757,644
3,757,645
438 3,757,646
482 3,757,647
485 3,757,648

CLASS 92

25 3,757,650

CLASS 93

1C 3,757,649
36.01 3,757,651
61R 3,757,652

CLASS 95

1.1 3,757,653
10CE 3,757,654
3,757,655
11R 3,757,643
11V 3,757,656
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31AC 3,757,660
31FM 3,757,658
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3,757,661
89R 3,757,662

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1.5 3,758,301
2 3,758,302
4 3,758,300
27R 3,758,303
38.4 3,758,304
83 3,758,306
91R 3,758,307
100 3,758,308
136 3,758,309

CLASS 98

2.12 3,757,663
37 3,757,664
40D 3,757,666
3,757,667
3,757,668
40R 3,757,665

CLASS 99

50.5 3,758,310
90R 3,758,311
179 3,758,312
199 3,758,313
280 3,757,669
302 3,757,670
400 3,757,671
404 3,757,672
410 3,757,673
440 3,757,674
446 3,757,675
450.6 3,757,676
630 3,757,677

CLASS 100

2 3,757,678
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100 3,757,680
180 3,758,325
214 3,757,681
220 3,757,682
229A 3,757,683
270 3,757,687

CLASS 101

18 3,757,684
45 3,757,688
66 3,757,685
148 3,757,689
415.1 3,757,690
3,757,691

CLASS 102

49.7 3,757,692
67 3,757,693
3,757,694
70.2G 3,757,695
70.2R 3,757,696
3,757,697
3,757,698

CLASS 104

23FS 3,757,699
165 3,757,700
242 3,757,701

CLASS 105

210 3,757,702

CLASS 106

1 3,758,314
8 3,758,315
55 3,758,316
65 3,758,317
3,758,318
88 3,758,319
129 3,758,323
146 3,758,324
288Q 3,758,320
3,758,321
300 3,758,322

CLASS 108

6 3,757,703
51 3,757,704
144 3,757,705

CLASS 110

7S 3,757,706
8C 3,757,707
8R 3,757,686
3,757,708

CLASS 112

79R 3,757,709
118 3,757,710
121.12 3,757,711
132 3,757,712
170 3,757,713
212 3,757,714
221 3,757,715

CLASS 113

1F 3,757,716
18E 3,757,717
120R 3,757,718

CLASS 114
16A 3,757,721
16E 3,757,719
16F 3,757,720
16 3,757,722
27 3,757,724
126 3,757,723
173 3,757,725
183R 3,757,726
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CLASS 115
16 3,757,728
28 3,757,729

CLASS 116
3,757,730
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115 3,757,732

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39 3,758,331
47A 3,758,332
62 3,758,333
100A 3,758,334
107.2P 3,758,328
126GM 3,758,329
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49.5 3,757,733
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50 3,757,735
59 3,757,736

CLASS 119
1 3,757,737
3,757,738
5 3,757,739
6 3,757,740
17 3,757,741
23 3,757,742
28 3,757,743
96 3,757,744

CLASS 122
136R 3,757,745
250R 3,757,746

CLASS 123
41.74Q 3,757,747
45A 3,757,748
90.22 3,757,749
97B 3,757,796
102 3,757,750
119CG 3,757,751
122D 3,757,752
136 3,757,753
148E 3,757,754
3,757,755
179G 3,757,756
188VA 3,757,757
198DB 3,757,758

CLASS 124
7 3,757,759
19 3,757,760
23 3,757,761
24 3,757,762
35 3,757,763
41 3,757,764

CLASS 126
41R 3,757,765
60 3,757,766
110B 3,757,767

CLASS 128
2M 3,757,768
2R 3,757,770
2Z 3,757,769
2.05F 3,757,773
2.05G 3,757,772
2.06R 3,757,778
2.1E 3,757,771
25B 3,757,774
130 3,757,775
145.6 3,757,776
146.2 3,757,777
218M 3,757,779
218N 3,757,780
223 3,757,781
269 3,757,782
277 3,757,783
281 3,757,784
287 3,757,785
335.5 3,757,786
346 3,757,787
348 3,757,788
404 3,757,789
419D Re.27,757
419P 3,757,790
3,757,791
3,757,792
3,757,793
3,757,794
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CLASS 130
24 3,757,797

CLASS 131
1 3,757,798
96 3,757,799
109B 3,757,800
171R 3,757,801
187 3,757,802
188 3,757,803

CLASS 132
7 3,757,804

CLASS 133
8R 3,757,805

CLASS 134
191 3,757,806

CLASS 135
47.5 3,757,807

CLASS 136
6FS 3,758,337
6F 3,758,338
67 3,758,340
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111 3,758,343
120FC 3,758,344
181 3,758,345
202 3,758,346

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47 3,757,809
68 3,757,810
116 3,757,811
142 3,757,812
172 3,757,813
268 3,757,814
475 3,757,815
498 3,757,816
596 3,757,817
596.16 3,757,818
625.23 3,757,819
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625.48 3,757,821
625.61 3,757,822
625.62 Re.27,758
625.64 3,757,823
798 3,757,824

CLASS 138
26 3,757,825
89 3,757,826
109 3,757,827
145 3,757,828
146 3,757,829
163 3,757,830

CLASS 139
336 3,757,831

CLASS 141
59 3,757,832
186 3,757,833
225 3,757,834
286 3,757,835
312 3,757,836

CLASS 144
2Z 3,757,837
3R 3,757,838
172 3,757,839

CLASS 148
4 3,758,347
6.15Z 3,758,349
175 3,758,348

CLASS 150
35 3,757,840

CLASS 152
210 3,757,841
216 3,757,842
301DM 3,757,843
361FP 3,757,844

CLASS 156
8 3,758,350
18 3,758,351
52 3,758,353
60 3,758,352
79 3,758,354
157 3,758,355
160 3,758,356
196 3,758,357
222 3,758,358
244 3,758,359
273 3,758,360
287 3,758,361
310 3,758,362
383 3,758,363
463 3,758,364
515 3,758,366
519 3,758,367
538 3,758,365

CLASS 160
189 3,757,845

CLASS 161
60 3,758,369
69 3,758,370
88 3,758,371
109 3,758,372
169 3,758,373
231 3,758,374

CLASS 162
156 3,758,375
162 3,758,376
163 3,758,377
216 3,758,378
246 3,758,379
306 3,758,380
348 3,758,381

CLASS 164
51 3,757,846
232 3,757,849
277 3,757,847
282 3,757,848
309 3,757,850

CLASS 165
21 3,758,368
41 3,757,851
47 3,757,852
76 3,757,853
106 3,757,854
166 Re.27,747
3,757,855
3,757,856
170 3,757,857

CLASS 166
77 3,757,858
173 3,757,859
248 3,757,860
273 3,757,861
280 3,757,862
307 3,757,863
308 3,757,864

CLASS 169
2R 3,757,865
37 3,757,866

CLASS 171
58 3,757,867

CLASS 172
4.5 3,757,870
9 3,757,868
40 3,757,869
178 3,757,871
225 3,757,872

CLASS 173
43 3,757,873
3,757,874
44 3,757,875

CLASS 174
19 3,758,699
28 3,758,700
3,758,701
71B 3,758,702
84C 3,758,703
102E 3,758,704
113R 3,758,705
120SR 3,758,706

CLASS 175
267 3,757,876
269 3,757,877
329 3,757,878
3,757,879

CLASS 178
5.2A 3,758,707
5.4ST 3,758,709
5.4C 3,758,708
6.6TC 3,758,710
3,758,711
6.8 3,758,712
3,758,713
3,758,717
3,758,723
7.5D 3,758,714
7.6 3,758,715
7.8 3,758,716
18 3,758,718
58R 3,758,719
67 3,758,720

CLASS 179
6.5 3,758,721
15BY 3,758,725
15A 3,758,722
18AB 3,758,724
99 3,758,729
100.1R 3,758,726
100.2C 3,758,727
100.2Z 3,758,730
175.31R 3,758,728

CLASS 180
5R 3,757,880
9.2 3,757,881
33R 3,757,882
70R 3,757,883
77R 3,757,884
79.2R 3,757,886
89A 3,757,885
98 3,757,887

CLASS 181
.5A 3,757,888
31B 3,757,889
3,757,890
33K 3,757,891
36C 3,757,892

CLASS 182
6 3,757,893
46 3,757,895
106 3,757,894
164 3,757,896

CLASS 187
6 3,757,897
8.62 3,757,898
17 3,757,899

CLASS 188
1C 3,757,900
65.4 3,757,901
71.1 3,757,902
82.3 3,757,904
138 3,757,903
170 3,757,905
196D 3,757,906
218XL 3,757,907
265 3,757,908
290 3,757,909
322 3,757,910

CLASS 190
57 3,757,911

CLASS 192
.02 3,757,912
3R 3,757,913
48.3 3,757,914
87.19 3,757,915

CLASS 194
1R 3,757,916
10 3,757,917
101 3,757,918

CLASS 195
1.8 3,758,382
96 3,758,383
103.5R 3,758,384

CLASS 197
6.7 3,757,919
19 3,757,920
3,757,921
49 3,757,922
94 3,757,923

CLASS 198
19 3,757,924
37 3,757,925
38 3,757,926
105 3,757,927
160 3,757,928
179 3,757,929
192 3,757,930
218 3,757,931
220BC 3,757,932

CLASS 200
5R 3,758,734
61.69 3,758,731
81R 3,758,732
82R 3,758,733
157 3,758,736
222 3,758,735

CLASS 201
6 3,758,385

CLASS 204
15 3,758,387
20 3,758,388
41 3,758,389
51 3,758,390
55 3,758,386
78 3,758,391
3,758,392
134 3,758,394
180R 3,758,395
181 3,758,396
195P 3,758,398
195S 3,758,397
228 3,758,399
279 3,758,393

CLASS 206
3 3,757,933
44R 3,757,934
46H 3,757,935
56AB 3,757,936
80R 3,757,937

CLASS 208
72 3,758,400
78 3,758,401
111 3,758,402
120 3,758,403
263 3,758,404

CLASS 209
5 3,757,938
72 3,757,939
74M 3,757,940
80.5 3,757,941
111.5 3,757,942
111.7 3,757,943
3,757,944
114 3,757,945
120 3,757,946

CLASS 210
23 3,758,405
86 3,757,947
102 3,757,948
122 3,757,949
123 3,757,950
131 3,757,951
198C 3,757,952
242 3,757,953
277 3,757,954
321 3,757,955
333 3,757,956
486 3,757,957

CLASS 211
153 3,757,958

CLASS 212
1 3,757,959

CLASS 214
1BB 3,757,961
1BD Re.27,754
1BH 3,757,963
1CM 3,757,962
1PB 3,757,960
3,757,964
6H 3,757,965
6P 3,757,966
8.5F 3,757,970
8.5K 3,757,971
16.4R 3,757,967
17B 3,757,968
83.3 3,757,969
85 3,757,972
152 3,757,973
339 3,757,974
450 3,757,975
515 3,757,976
620 3,757,977

CLASS 215
1C 3,757,978
9 3,757,979
23 3,757,980
37R 3,757,981

CLASS 219
10.49 3,758,738
10.55 3,758,737
67 3,758,740
69G 3,758,739
91 3,758,741
98 3,758,742
3,758,743
3,758,744
121LM 3,758,745
145 3,758,746
212 3,758,747
213 3,758,748
216 3,758,749
457 3,758,750

CLASS 220
9C 3,757,982
23.4 3,757,983
27 3,757,984
29 3,757,985
39R 3,757,986
44R 3,757,987
47 3,757,988
54 3,757,989
63R 3,757,990
81 Re.27,748
113 3,757,991

CLASS 221
13 3,757,992
80 3,757,993
202 3,757,994
211 3,757,995
3,757,996
241 3,757,997
242 3,757,998

CLASS 222
57 3,757,999
143 3,758,000
146HA 3,758,002
146R 3,758,003
146 3,758,001
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	3,757,992		3,757,665		3,758,464	49 :	3,757,559		3,758,034		3,758,169
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45 :	3,757,381		3,757,733		3,758,564		3,757,878	54 :	3,757,409		3,758,339
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47 :	3,757,536		3,757,921		3,758,608	50 :	3,757,636		3,757,486		3,758,869
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DESIGN PATENTS

6	228,323	11 :	228,354		228,358		228,345		228,341		228,353
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	228,365		228,321		228,329	39 :	228,328				

U. S. GOVERNMENT PRINTING OFFICE : O - 1973